

NAVAL POSTGRADUATE SCHOOL

Monterey, California



DESIGN OF OPERATIONAL CAREER LADDERS

Richard S. Elster, Robert R. Read,
William H. Githens, Gerald L. Musgrave,
and John W. Creighton

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Task inventories were administered to Civil Service personnel in San Diego, CA. and Washington, D.C. Statistical analyses were conducted of the task inventory data in order to describe, cluster, and compare the various jobs. Preliminary attempts were made at defining career ladders and job families. Needs for further research are discussed.		

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INTRODUCTION

This report is one of six Naval Postgraduate School technical reports documenting and describing a research project titled, "Design of an Operational Personnel Development and Evaluation System," sponsored by the Naval Material Command. The following is a listing of these six reports:

1. NPS-55Gh73061
DESIGN OF AN OPERATIONAL PERSONNEL
DEVELOPMENT AND EVALUATION SYSTEM
by: William H. Githens, Richard S. Elster,
Gerald L. Musgrave, and John W. Creighton.
2. NPS-55Ea73061
DESIGN OF OPERATIONAL CAREER LADDERS
by: Richard S. Elster, Robert R. Read,
William H. Githens, Gerald L. Musgrave,
and John W. Creighton.
3. NPS-55Gh73062
DESIGN OF AN OPERATIONAL MANAGEMENT
DEVELOPMENT MANUAL
by: William H. Githens, Richard S. Elster,
Gerald L. Musgrave, and John W. Creighton.
4. NPS-55Gh73063
DESIGN OF AN OPERATIONAL RATING MANUAL
by: William H. Githens, Richard S. Elster,
Gerald L. Musgrave, and John W. Creighton.
5. NPS-Mg73061
DESIGN OF AN OPERATIONAL MANAGEMENT BY
OBJECTIVES MANUAL
by: Gerald L. Musgrave, Richard S. Elster,
John W. Creighton, and William H. Githens.
6. NPS-55Rr73061
STATISTICAL ANALYSIS OF PERSONNEL DATA USING
FACTOR SCORING, CLUSTER ANALYSIS, AND MULTI-
DIMENSIONAL SCALING
by: Robert R. Read, Richard S. Elster,
Gerald L. Musgrave, John W. Creighton,
and William H. Githens.

An executive summary of the entire project follows, and any additional information about the project can be obtained from the Project's Principal Investigator, Dr. Gerald L. Musgrave, Department of Operations Research and Administrative Sciences, Naval Postgraduate School, Monterey, California 93940.

EXECUTIVE SUMMARY
OF
THE PERSONNEL DEVELOPMENT AND EVALUATION SYSTEM

INTRODUCTION

The purpose of this research project was to develop and implement a management system to more effectively utilize civilian professionals. Two "test bed" activities were selected--Naval Supply Center and Naval Regional Finance Center, both in San Diego, California. The project has four parts:

1. Establishing a Group Appraisal System.
2. Developing a Goal Setting System.
3. Constructing Performance Rating Scales.
4. Developing Career Ladders.

GROUP APPRAISAL

The management development program involved civilian professionals at the two commands in group performance appraisal sessions. A professional's work performance was usually appraised by his supervisor and by the supervisor's superior. This group would meet with a member of the research team. The appraisals conducted by these groups were focused on, and limited to, intra-appraisee considerations. That is, the appraisal committee considered the individual in terms of his greatest strengths and his least strong work performances, but did not compare the appraisee with other individuals. Recommendations for the appraisee, for the appraisee's supervisor, and for the organization were then made so that this appraisee (a "human asset") could grow in worth to himself and to the organization.

A summary of the appraisal committee's thinking was then written by the research team member who had attended the committee's meeting and given to the appraisee's supervisor for his review. The supervisor then discussed the appraisal with the appraisee, stating that this is "how others see and interpret you," and that "here are our thoughts on how you might further develop and utilize your talents."

The responses to the appraisal program were varied. A number of appraisees stated informally that they felt their appraisal session with their supervisor had been one of the most meaningful experiences they had while in the Civil Service. Many supervisors, however, experienced their first exposure to a face-to-face dialogue with one of their subordinates and found the feedback session to be somewhat traumatic. The development of supervisory skills in these feedback behaviors appears to be a crucial requirement if face-to-face dialogues between supervisors and subordinates are to become common and meaningful.

GOAL SETTING

Another part of the project was to establish a framework to foster and facilitate a "result oriented" management system. Our experience was that effective goals could be established and that while it took time to develop goals, the act of setting goals was beneficial to the organization.

Goal setting was new to managers and they were resistant to formalizing goals. Some of the resistance seemed to be attributable to unfamiliarity with the concept of producing results, as compared to being engaged in activities. Another resistive force seemed to be the fear that goal setting would be used for punitive managerial actions.

We believe that after more experience is gained in goal setting and when employees' fears of consequential management action are found to be unwarranted, a greater acceptance of the program will result.

Our research at the Naval Postgraduate School and the San Diego Centers leads to the development of a new Goals and Controls System. This system includes a Work Performance Folder and a Goal Setting Manual that is to be used in conjunction with the folder. The system can be used to formulate goals, monitor and control performance, and to appraise work performance at the end of the year.

PERFORMANCE RATING SCALES

Section IV of this report presents the rating scales which were developed for professional occupations in Supply and Finance.

ANCILLARY STUDIES

The project report includes a number of sections which are indirectly related to the central issues of performance appraisal, goal setting, scale construction and career ladders. These related sections include analyses of questionnaires administered to individuals at the Centers, bibliographic resource materials, and a number of related ancillary studies. These studies are related to human asset accounting, goal setting, auditing, and statistical analyses of organizational climate and attitudinal data from the Centers.

BACKGROUND

During Fiscal Year 1972, the Navy Material Command financed investigations by Naval Postgraduate School (NPS) faculty as part of their exploratory research directed at developing methods and means for improving organizational effectiveness. In the course of various dialogues concerning NAVMAT operations, topics related to the age and replacement of professional civilian personnel were discussed. These discussions then turned to the issues of performance evaluation and management by objectives. The Office of Civilian Manpower Management (OCMM) became interested in these problems, and the NPS was requested by NAVMAT and OCMM personnel to submit a proposal for implementing some relevant managerial programs during FY 73. NPS responded with the proposal included as Appendix 1.

The proposal involved the following main objectives:

1. Developing for each civilian professional specific ways in which he can improve his knowledge, skills, attitudes, or behaviors to make him a more valuable human asset for the Navy.
2. Develop for each civilian professional a list of specific ways in which management can better utilize his talent.
3. Advise each civilian professional of what his boss wants him to accomplish during the coming year, and the evidence that will be used to judge such accomplishment.
4. Generate for each professional position the best performance rating scales allowed by current technology.
5. Generate "career ladders" for civilian professional jobs that relate field jobs to jobs in Washington, D.C. These "ladders" were to be based on the similarities and differences between and among jobs.

The on-site locations for this "demonstration" project were the Naval Supply Center, San Diego, and the Navy Regional Finance Center, San Diego. The main administrative offices for both organizations are located in the same building and both organizations are served by the same personnel department. Tables of organization for these two organizations, which show only the professional civilian billets and the hierarchy above them, are presented in Appendix 2. These two organizations were chosen because: (1) they are located in the same building, (2) this choice would allow one of the principal investigators to be on-site full-time, (3) they were within reasonable commuting distance from the Naval Postgraduate School in Monterey, and (4) both were considered by NAVMAT and NAVCOMPT personnel to be relatively healthy and efficient organizations.

A combination of "Management by Objectives" and "Group Appraisal" was used in accomplishing the first three of the five above objectives. Working from the higher toward the lower positions in the organizational hierarchy,

each supervisor called a committee meeting with his supervisor and several other employees who would have been in a position to observe the work performance of the appraisee. Following a brief discussion of the "strongest" and "least strong" aspects (intra-individual) of the appraisee's performance, the committee developed a list of recommendations in keeping with the first two of the aforementioned objectives. (Each of these discussions focused only on intra-individual differences.) Following this group meeting, the supervisor conducted a counseling session with the appraisee during which the opinions and recommendations of the committee were discussed. With this as a background, the supervisor and appraisee then worked out a list of specific goals for personal development to be accomplished during the coming year. In addition, based on the requirements and expectations of work accomplishment for the coming year as worked out by the supervisor and his boss, the supervisor and the appraisee (subordinate) worked out a list of goals for organizational accomplishment (objective #3) applying to the appraisee. Thirty of the 85 professional employees at NSC and all 25 of the professional employees at NRFC were covered by this program. Part II of this report deals with the developmental activities involved in objectives 1 and 2, while Part III of this report is concerned with the MBO portion (objective #3) of the project.

Generation of the best performance rating scales for each professional job (objective #4) involved the following scale construction steps:

1. A group of employees (3 to 6) familiar with the job listed the most relevant aspects of performance for the specific job.
2. The group then generated "specific" behavioral examples they had observed that demonstrated high and low performance on each performance aspect.
3. At a later time, these behavioral incidents were presented to the individuals in the group, who assigned them to the rating scale (aspect) and rating scale level (low to high on a 5-point scale) that they thought appropriate.
4. Incidents that were not by consensus assigned to the same location (both rating scale and level) were eliminated.

This procedure yielded rating scales that are relevant to the job being rated and that are "anchored" by specific behavioral incidents representing on the scales the various levels of job performance.

Rating scales were constructed for 6 of the 27 civilian professional jobs at NSC and for 3 of the 7 jobs at NRFC. General "supervisory" scales were constructed covering 11 of the 21 remaining jobs at NSC and all 4 of the remaining professional jobs at NRFC. Part IV of this report and Technical Report NPS55Gh73063 present the scale construction work conducted during the research project.

In support of objective #5, a task inventory asking employees to list the degree to which they were involved in various activities was administered

to 85 civilian professionals at NSC and 26 civilian professionals at NRFC. The same inventory was completed by civilian professionals in NAVSUP and NAVCOMPT in Washington, D.C. The data from the responses to this inventory formed the basis for the investigation of career paths, which was objective #5 of this project. The research done on career paths is described in Technical Report NPS55Ea73062.

Another technical report in this series, NPS55Rr73061, contains ancillary studies conducted during the term of this project. These studies included one using multidimensional scaling in examining how supervisors differentiate among their subordinates, and another effort which involved developing a comprehensive bibliography of the Management by Objectives literature.

CAREER LADDERS

Background and Introduction

The proposal for the research effort by the Naval Postgraduate School stated, in part, that critical incident and task analysis methods would be used to describe positions in San Diego and Washington, D.C. Additionally, the proposal promised that statistical analysis techniques would be used to structure empirical job groupings and job hierarchies within the various occupational areas studied. This section of the final report will discuss the purposes and the results of the analyses conducted of selected jobs in Supply and Finance. Two types of analyses will be discussed here: canonical correlation analysis and hierarchical classification (cluster) analysis.

Purpose of the Canonical Correlation Analysis

Almost any job is extraordinarily difficult to describe in a precise but exhaustive way, and the analysis or description of managerial level jobs is particularly vexing. It is important, however, to define the behavioral requirements of a managerial job in terms of a relatively small set of variables, as long as the set is an exhaustive one. One would also like to be able to describe all managerial jobs in terms of a common set of behavioral variables, just as individuals can be described and compared by referring to variables such as age, height, and intelligence. Once developed, the set of behaviorally oriented managerial job dimensions can provide a springboard for many personnel administration programs. Predictions of managerial performance should, for instance, be improved because the job could be "profiled" on the dimensions, allowing one to know in advance what kinds of behaviors and performances are emphasized in that position. Career progression paths (both inter- and intra-organizational) and associated training/development needs should also be more visible when the managerial jobs are all described in terms of a common set of behavioral dimensions.

The probability of an effective manager remaining an effective manager should be greater when he is transferred between jobs which have similar profiles on the dimensions than when he is transferred between jobs which have dissimilar profiles. A transfer between jobs meaning a move "upward" on one or more of the behavioral requirements dimensions should reveal a great deal about what aspects of a manager's job performance should be evaluated. The dimensions on which a managerial job has a high score are, very probably, also some of the dimensions on which the effectiveness of a manager's job behavior should be evaluated. Likewise, jobs falling near to each other on all of the behavioral dimensions might be expected to require the same set of performance evaluation measures.

Approach

In order to develop job groupings and to determine the behavioral dimensions that can be used to describe managerial jobs, one begins by collecting information concerning the tasks performed by managers in their jobs. Statistical analysis can then be conducted on the task data that have been collected. The construction of the task inventory, the details of the analyses conducted

on the data gathered by using the inventory and the results of these analyses will be discussed in the succeeding paragraphs.

Task Inventory Development

In 1959, John Hemphill of the Educational Testing Service developed a task inventory for executive-level positions. From the responses of industrial executives to this task inventory, Hemphill then developed scoring keys and norms for scoring industrial managers on ten dimensions. Task statements in Hemphill's original inventory served as the starting point for the Monterey project group in developing a task inventory to be used by Civil Service managers in Supply and Finance for describing their positions. Members of the Monterey research team reviewed Hemphill's task inventory in order to determine which task statements should be altered and which should be eliminated. Many of the original task statements were rewritten so they would be more descriptive of tasks performed by Civil Service managers. Task statements were eliminated if they would apply to managers working in the private sector of the economy but not to managers working in governmental positions. After altering and deleting task inventory items, attention turned to adding task statements describing job behaviors thought to be required of managers in the Civil Service.

Most of the additional task inventory items were developed by observations of Civil Service managers at work, and via discussions with managers at the Naval Supply Center and Navy Regional Finance Center at San Diego. Other task items were included in the inventory because of the research team's belief that they were performed by at least some managers in positions at the Supply or Finance headquarters in the Washington, D.C. area.

The revised task inventory and associated instructions were then tried out using a small sample of managers at the NSC and the NRFC in San Diego. This administration revealed that no changes appeared to be required in the set of task statements, but that the instructions for completing the inventory needed clarification. The modifications made in the instructions were directed at allaying the puzzlement some respondents felt at the fact that some or many of the task statements were not descriptive of their jobs. As the task inventory was being designed for coverage of a very broad range of jobs, the inapplicability of some task statements to any particular job was, of course, to be expected. The instructions for the inventory were changed so the respondent would know that the inapplicability of some, or even many, tasks should not be a worrisome outcome. Additionally, an extra section was added to the inventory which urged the respondent to add additional tasks characteristic of his job.

The tryout of the task inventory revealed that the modal time required for completion was 30 minutes. This time was considered acceptable by the research team. A copy of the final version of the task inventory is included as Appendix 1 of this report.

Data Analysis Goals

Before giving an overview of the data analysis procedures used with the task inventory data, it is appropriate to review briefly the outcomes desired from these analyses. First, it is desired that the analysis yield clusters

of positions identified as being similar to one another with regard to their behavioral requirements. The positions in any particular cluster may be from just one command; e.g., San Diego NSC, or from two locations; San Diego and Washington, D.C.

Second, the analysis should provide dimensions by which the positions can be described and compared. These dimensions should be useable in describing the positions from all the commands surveyed; e.g., San Diego and Washington headquarters. Additionally, these dimensions should provide an understandable, but parsimonious, explanation of the observed differences among the jobs surveyed. The next section of the report discusses some of these goals in more detail.

Canonical Correlation Analysis Results

By its very nature, this portion of the report is rather heavy reading. Additionally, the results of the canonical analyses were less useful than the researchers had hoped they would be. The reader who is not interested in canonical analysis per se is encouraged to skip this portion of the report and turn to the portion entitled "Cluster Analysis of Finance and Supply Positions".

Canonical correlation analysis is a method used to transform two or more sets of variables into common dimensions. Additionally, the procedure is carried out in such a way that for each of the common dimensions the correlation between the two sets of transformed variables is maximized.*

After a canonical correlation analysis has been conducted, attention logically turns to attempting to understand the dimensions or factors extracted from the data. To facilitate the interpretations of the dimensions determined in the analysis of the data from the NAVSUP jobs, the associations between individuals' responses to the task inventory and the scores of their jobs on each of the dimensions were examined. Bivariate linear correlation coefficients were the measures of relationship used to examine these associations.

* An example from psychology may help in understanding canonical correlation. Responses by individuals to the items in a personality inventory can be compared to their responses to a vocational interest inventory in order to understand the relationships between the two inventories. A canonical correlation analysis would yield the dimensions or factors accounting for the relationships between the two inventories. The analysis would also show, for each dimension, the personality items associated with the interest items (and vice-versa, of course) and the importance of each of these items to the relationship. The results of such an analysis would go a long way toward clarifying the relationships between the two inventories and the associations between individuals' personalities and their vocational interests.

Canonical Correlation Analysis Results for NAVSUP

Computer program and data storage constraints limited the canonical correlation analysis to 60 NSC positions from San Diego and 40 Washington, D.C. NAVSUP positions. These 100 positions were chosen randomly from the total set of responses. Table V-1, below, shows the average response and the standard deviation of the responses for each of the 100 positions included in the analysis. As each individual completing a task inventory responded to 188 items, the average and standard deviation for each individual were computed using that person's 188 responses.

TABLE V-1

Average Response and Standard Deviation of Response
to the Task Inventory for 100 Supply Positions

<u>Position Number*</u>	<u>Average Response**</u>	<u>Standard Deviation of the Responses to the 188 Item Inventory from this Position</u>
1	3.44	3.41
2	0.50	1.28
3	1.84	2.29
6	0.40	1.20
9	1.61	2.20
10	3.09	3.23
11	2.71	2.47
13	3.24	3.13
14	0.56	1.60
15	0.78	1.65
16	0.67	1.46
18	0.44	1.29
19	0.64	1.42
20	1.66	2.57
21	0.79	1.80
22	1.02	2.15
24	3.91	2.68
25	0.73	1.61
26	3.89	2.81
27	1.53	2.48
28	1.88	2.13
30	0.43	1.03
31	3.07	3.19
33	3.28	2.91
34	3.82	2.82
35	3.78	2.65
36	0.73	1.89
37	0.02	0.14
38	3.54	2.81
39	1.10	1.91
40	0.63	1.62
41	0.27	0.75

<u>Position Number*</u>	<u>Average Response**</u>	<u>Standard Deviation of the Responses to the 188 Item Inventory from this Position</u>
44	1.36	2.53
46	1.70	2.69
50	1.51	2.09
52	0.74	1.83
54	2.11	2.96
56	0.59	1.52
57	1.05	2.22
59	1.23	1.53
60	0.80	1.98
62	1.13	2.22
64	2.79	2.52
65	3.57	3.03
66	2.91	2.26
67	0.93	2.22
68	0.91	2.13
69	5.01	2.50
70	1.86	2.30
71	3.08	2.19
72	2.22	2.18
76	1.68	2.56
78	3.14	2.99
79	0.66	1.65
80	0.93	1.91
81	2.84	2.68
84	3.45	3.15
86	0.36	1.07
87	3.16	2.72
89	1.02	2.05
150	3.32	2.86
151	2.12	2.19
152	3.43	3.05
153	2.50	2.59
154	1.28	1.89
155	2.11	2.65
156	3.76	2.80
157	1.55	1.75
158	2.65	2.11
159	1.44	2.04
160	3.03	2.58
161	3.11	2.36
163	2.62	2.22
164	3.00	2.78
165	3.07	1.83
166	2.78	2.29
167	1.91	2.06
168	2.48	2.52
169	1.12	1.61
170	1.68	2.30
174	2.57	3.09
175	1.76	2.11

<u>Position Number*</u>	<u>Average Response**</u>	<u>Standard Deviation of the Responses to the 188 Item Inventory from this Position</u>
176	3.02	2.63
177	1.69	2.13
178	2.18	1.72
179	3.78	2.97
180	2.67	2.61
181	1.98	2.68
182	1.85	2.26
186	3.72	2.37
188	1.69	2.17
189	2.20	2.11
190	1.39	1.99
191	1.68	1.81
192	2.84	2.95
193	2.44	2.44
194	1.37	1.59
204	2.71	3.11
205	2.77	2.41
206	2.67	2.66

 * See Appendix 2 for the job title-position number listings.

** The response scale for each of the task inventory statements ran from zero through seven.

As can be seen from examining the means and standard deviations in Table V-1, there is a great amount of heterogeneity among the 100 positions studied with regard to how much the tasks in the survey are experienced by the position incumbents. The tasks in the survey, tasks which are oriented toward executives, apparently did not describe some positions (those having a low mean and a low standard deviation) particularly well, or, some positions are rather narrow in nature in that they involved performing a very few tasks of the type included in the survey.

The results of the canonical correlation analysis yielded 11 statistically different dimensions or factors. Table V-2 includes the statistics concerning the 11 statistically significant dimensions extracted from the data using the canonical correlation methodology.

TABLE V-2

Dimensions Determined from the Canonical Correlation
Analysis and Tests for Their Significance
(Data were from 100 Supply Positions)

<u>Dimensions (Factors)</u>	<u>Canonical Correlation</u>	<u>Chi- Square</u>	<u>Degrees of Freedom</u>
1	.976	3818.63	2400
2	.941	3401.83	2301
3	.921	3102.51	2204
4	.911	2843.63	2109
5	.879	2599.83	2016
6	.865	2395.57	1925
7	.857	2205.85	1836
8	.837	2023.47	1749
9	.820	1857.36	1664
10	.809	1703.83	1581
11	.792	1557.31	1500

As the results in Table V-2 show, 11 dimensions appear to account for the relationships among the NAVSUP positions in both San Diego and Washington, D.C. These dimensions also account for the differences among the jobs in each location.

In order to better understand the 11 dimensions shown above in Table V-2, the relationships between how positions were described on the task inventory and the locations the positions the positions on the dimensions were analyzed. As each of the 100 positions had been located on each of the 11 dimensions, and each of the positions had a score on each of the 188 statements in the task inventory, correlations could be computed between each dimension and each task inventory item. Task items significantly correlated with the locations of positions on a dimension were then examined as they aid in interpreting the dimension.

Before these correlational analyses were conducted, the standard deviations of the variables being correlated were examined. This examination was required as correlations reflect the associations between and among variables, and variables with such small standard deviations that the variables approach being constants cannot have other than low correlations with other measures.

The average response to each of the 188 task items was also computed. Task items having low standard deviations and high means are tasks important to all, or the preponderance, of the positions surveyed. Task items with low standard deviations and low mean responses are tasks unimportant to the majority of the positions sampled.

Items with high means and low standard deviations deserve a few additional comments in this discussion. As mentioned in the previous paragraph, such task items are not useful in differentiating among the positions in the sample, but they are useful in two other ways. First, managerial tasks which tend to be performed in all of the 100 positions surveyed are areas in

which all incumbents to those positions should have been, or be, trained. Second, managerial tasks performed in all the positions surveyed are task areas which can be addressed in assessing the performances of incumbents to those positions.

Figure V-1 displays the task items plotted with standard deviation values on the ordinate and mean response values on the abscissa. The numbers plotted in Figure V-1 are the numbers of the task items statements as those statements appear in the task inventory. (A copy of the task inventory is included as Appendix 1.)

As Figure V-1 reveals, there are considerable differences among the means and standard deviations of the responses to the task inventory items. Items having low means and low standard deviations indicating they are unimportant to almost all of the NSC positions surveyed were:

- Item 94: Sales quotas
- Item 66: Expenditure of sums exceeding \$10,000 in routine Operations
- Item 24: Approve labor contracts
- Item 32: Bargain with union representatives

These 4 items could be reasonably deleted from future task inventory surveys for supply positions.

Tasks having low means, but standard deviations indicating some respondents had positions in which the tasks were relatively important, were:

- Item 22: Have a public speaking engagement at least as often as once every six months
- Item 85: Relationships with unions
- Item 95: Merchandising policies
- Item 65: Payment of salary and/or wages
- Item 12: Make speeches at public gatherings
- Item 3: Maintain personal contact with heads of union groups
- Item 70: Payment of organizational obligations
- Item 78: Employee benefit plans
- Item 68: Labor contracts

As the pattern of points in Figure V-1 shows, task items with higher means (indicating these tasks are a substantial part of the positions) also tended to have higher standard deviations. Thus, these items were adjudged important to some positions, and relatively unimportant to other positions. A somewhat obvious fact, that nevertheless deserves mention, is that none of the items had response means particularly near the maximum of 7. Unless the task inventory was deficient, it would seem that there are not any tasks which can be designated as constituting "a most significant portion" of all the Supply occupations surveyed. The task items having the 3 highest responses means were:

- Item 10: Verify important facts before they become part of a record
- Item 44: Trouble-shoot special problems as they arise
- Item 50: Secure facts and information for others

FIGURE V-1

TASK ITEM RESPONSE STATISTICS

FOR ITEMS 1-96

SAMPLE = 100 SUPPLY POSITIONS

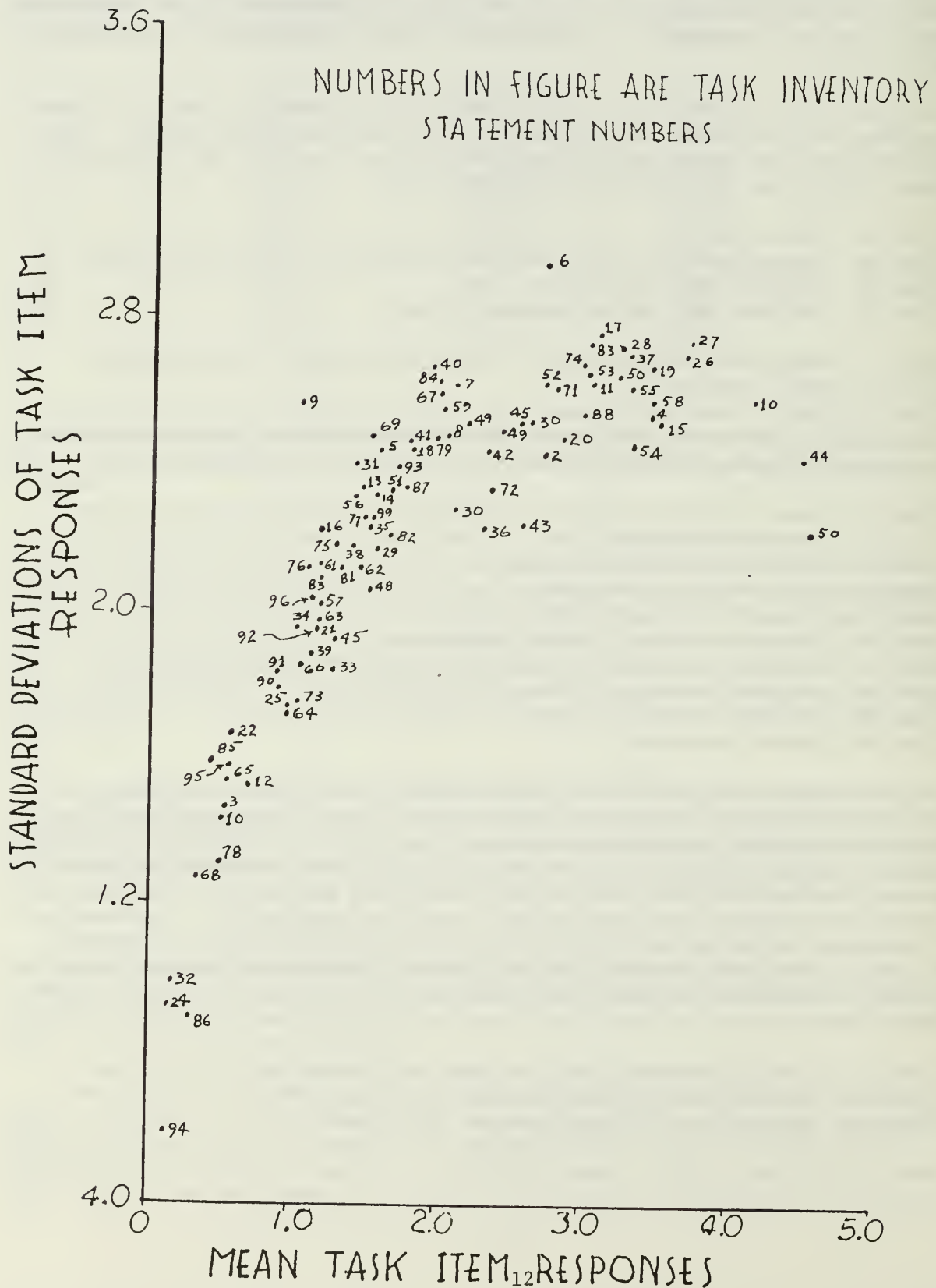
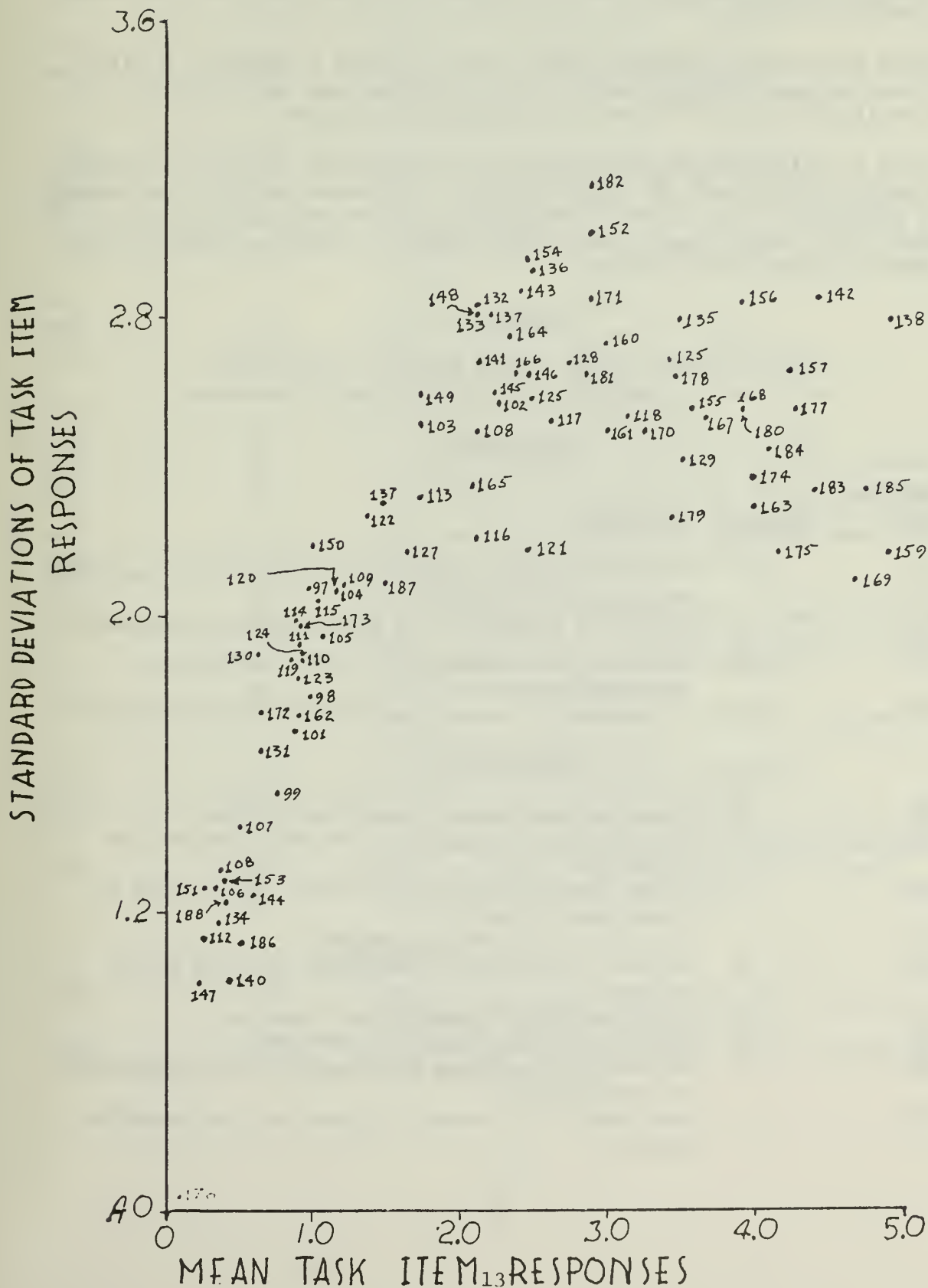


FIGURE V-1 (CONTINUED)
TASK ITEM RESPONSE STATISTICS
 FOR ITEMS 97-188
 SAMPLE = 100 SUPPLY POSITIONS



Another use to be made of the data shown in Figure V-1 was proposed above to facilitate the identification of task items having low standard deviations. Such items are unlikely to be measurably correlated with other items since constants are independent of all variables. One must keep the standard deviations of the task inventory in mind, for instance, when examining the relationships among the responses to the 188 task inventory items and the scores of the 100 positions on the 11 factors determined from the canonical correlation analysis.

Given the results discussed above, and portrayed in Figure V-1, the correlations between the responses to the task items and the locations of the 100 positions on the 11 dimensions can now be examined.

Table V-3 displays the task inventory items having the major loadings (.20 or greater) with each of the dimensions. Parenthetically, if one wished to score positions on the eleven factors derived from the task inventory, the task items having significant correlations with the dimensions would be the task items utilized in the scoring.

TABLE V-3

Task Inventory Items Having Notable Correlations
with the 11 Dimensions for the 100 Supply Positions

DIMENSION I

<u>TASK INVENTORY ITEM</u>	<u>LOADING</u>	<u>STATEMENT</u>
136	-.31	Avoid any public comment critical of good customer/ supplier/contractor.
156	.23	Signifies membership in top or middle management.
159	-.28	Involves first-hand contact with customers of the organization.
182	.26	Is considered a staff rather than line position.

DIMENSION II

001	.22	Plan the analysis of quantitative data.
005	.28	Nominate key personnel in the organization for promotion
008	.28	Visit each of the organization's major units at least once a year.
011	.29	Edit drafts of special reports.
016	.28	Approve transfers of personnel from one job to another.
020	.30	Make analyses of statistical reports.
027	.27	Appraise the results of operations.
029	.40	Serve on a committee concerned with the appraisal of performance.
031	.39	Set profit (efficiency) objectives for operating groups.

TASK INVENTORY ITEM	LOADING	STATEMENT
037	.27	Analyze regularly the effectiveness of operations.
040	.24	Supervise a team of specialists.
042	.31	Analyze operating performance reports.
043	.22	Devise procedures to properly reflect the results of operations.
049	.24	Evaluate records of production.
052	.32	Set goals for future performance.
054	.20	Brief others on the contents of reports, letters, etc.
055	.24	Appraise the results of operations.
057	.22	Make recommendations for salary increases.
059	.23	Keep a constant check upon the activities of subordinates.
062	.23	Optimum return on investments of the organization.
064	.24	Capital expenditures.
065	.26	Payment of salary and/or wages.
066	.26	Expenditure of sums exceeding \$10,000 in routine operations.
067	.33	Selection of new personnel.
071	.23	Forecasting future trends or events.
081	.21	Pricing organization products and/or services.
082	.23	Promotion of the organization products/services.
083	.22	Proper handling of other than personal monies.
097	.21	Long-range solvency of the organization.
108	.30	Over- or under-staffing of jobs.
117	.26	Sizing up people.
123	.25	New markets for future products (goods/services).
124	.31	Market conditions affecting the users of the organization's products/services.
125	.29	Efficiency of operations.
126	.35	Preparation of quarterly (or more frequent) reports on operations.
127	.21	Development of management trainees.
131	-.20	Be active in community affairs.
133	-.23	Even during most relaxed social occasions, avoid deviations from generally accepted behavior.
136	-.24	Avoid any public comment critical of good customer/supplier/contractor.

DIMENSION III

141	.22	Work with persons whose interests conflict with the demands of my position.
159	-.23	Involves first-hand contact with customers of the organization.

TASK INVENTORY

<u>ITEM</u>	<u>LOADING</u>	<u>STATEMENT</u>
<u>DIMENSION IV</u>		
034	-.38	Analyze expense items involving a gross of at least \$5,000.
065	-.23	Payment of salary and/or wages.
070	-.19	Payment of organizational obligations.
122	.21	Goodwill of the organization in the community.
138	-.20	Be careful to avoid inadvertant disclosure of confidential information.
140	-.23	Take a leading part in local community projects.
141	-.22	Work with persons whose interests conflict with the demands of my position.
146	-.20	Work with information of questionable reliability.
149	-.21	Avoid publicity associated with personal difficulties.
164	.20	Involves very frequent contact with the public.
<u>DIMENSION V</u>		
037	-.23	Analyze regularly the effectiveness of operations.
038	-.24	Review budgets for operations.
039	-.38	Establish effective expense controls.
042	-.25	Analyze operating performance reports.
043	-.22	Devise procedures to properly reflect the results of operation.
046	-.26	Explain divergence between budget and actual expenditure
048	-.33	Consolidate estimates from various sources.
063	-.21	Preservation of capital assets.
064	-.26	Capital expenditures.
065	-.22	Payment of salary and/or wages.
070	-.25	Payment of organizational obligations.
085	-.22	Relationships with unions.
105	.27	Opportunities to promote the organization before the public.
120	-.26	Redesign of products to reduce costs.
143	.26	Be capable of performing the jobs of all subordinates.
150	-.24	Refrain from public criticism of the organization's operations.
152	.27	Get to know each person under me.
<u>DIMENSION VI</u>		
050	.27	Secure facts and information for others.
092	.25	Promises of delivery that are difficult to meet.
093	.21	Product specifications.
096	-.22	Market trends five to ten years in the future. (Demands for the future from the Navy & others.)

TASK INVENTORY

<u>TASK INVENTORY ITEM</u>	<u>LOADING</u>	<u>STATEMENT</u>
100	.24	Interpretation of details of a collective bargaining agreement.
114	-.22	The effectiveness of a force of 100 or more personnel.
143	-.27	Be capable of performing the jobs of all subordinates.
174	.21	Involve close association with women personnel.

DIMENSION VII

040	-.24	Supervise a team of specialists.
057	-.21	Make recommendations for salary increases.
106	-.27	New competitive products.
145	.23	Gain the respect of very important persons.
146	.27	Work with information of questionable reliability.
166	.23	Involves first-hand contact with machines and their operations.
176	-.30	Carries a personal expense allowance.

DIMENSION VIII

022	-.20	Have a public speaking engagement at least as often as once every six months.
056	-.24	Define areas of responsibility for supervisory personnel.
069	-.25	Definition of areas of responsibility of supervisory personnel.
082	.21	Promotion of the organization products/services.
146	.25	Work with information of questionable reliability.
165	.36	Involves maintaining the respect of a few important persons.

DIMENSION IX

003	-.24	Maintain personal contact with heads of union groups.
012	-.22	Make speeches at public gatherings.
022	-.20	Have a public speaking engagement at least once every six months.
054	-.21	Brief others on the contents of reports, letter, etc.
120	.24	Redesign of products to reduce costs.
124	.20	Market conditions affecting the users of the organization's products/services.
166	.21	Involves first-hand contact with machines and their operations.

TASK INVENTORY

<u>ITEM</u>	<u>LOADING</u>	<u>STATEMENT</u>
<u>DIMENSION X</u>		
103	.22	Control of product quality.
143	-.22	Be capable of performing the jobs of all subordinates.
147	.22	Maintain membership in two or more business organizations.
152	-.24	Get to know each person under me.
155	-.26	Make decisions without consulting others.
<u>DIMENSION XI</u>		
186	.20	Involves dealing with the representatives of the legislative branch of the government.
187	.24	Involves dealing with other than DOD representatives of the executive branch of the government.

Interpreting the 11 Dimensions

The interpretations of the results of a factor analysis are nearly always difficult to make, and this analysis provides no exception. The labels or interpretations assigned here should be regarded as speculative appellations. The interpretations made here represent attempts to align these results with those Hemphill obtained from studying industrial executives' positions, as one would presume, apriori, that Civil Service and industrial managers' jobs could be described in terms of similar dimensions. A last caveat is in order. The research team did not possess enough knowledge about the positions studied -- particularly jobs in Washington, D.C. -- to feel comfortable with its interpretations of the labels applied to the dimensions. Position incumbents should therefore participate in interpreting the 11 dimensions.

The first dimension, as can be seen by examining Table V-3, had significant correlations with only four task inventory items. These four task items include two (numbers 136 and 159) that involved relationships and contacts with customers/suppliers/contractors, and these two items are associated in the same way (negatively) to the locations of the 100 positions on this dimension. The other two inventory items address the incumbent's perception of his job. In particular, they ask the incumbent to define his job in terms of its location in the organization; i.e., membership in top or middle management, or in the staff versus in the line. These two items are positively related to Dimension I; therefore, an incumbent who feels that these items are apt descriptors of his job will tend to receive a positive score on the first dimension.

Only seven jobs (see Table V-3) had other than very trivial associations with Dimension I. These jobs were:

DIMENSION I

<u>Position Number</u>	<u>Command</u>	<u>Position's Location on the Dimension</u>	<u>Job Title</u>
14	San Diego	+	Contract Administrator
18	San Diego	-	Inventory Management Specialist
65	San Diego	+	Program Analyst
70	San Diego	+	Personnel Staffing Specialist
166	Washington	+	Management Analyst
175	Washington	+	Head, Budget Form. Branch
177	Washington	+	Fiscal Accounting Assistant

The first dimension, considering both the task items and the positions related to it, appears to address positions' roles in the organization, and the extraorganizational contacts required of position incumbents. Further interpretation of this dimension should be done jointly by position incumbents and members of the research team.

Dimension number two has a large number of task items significantly related to it, and has been labeled as "Exercise of Broad Power and Authority". The positions most highly related to the second dimensions are shown below:

DIMENSION II

<u>Position Number</u>	<u>Command</u>	<u>Position's Location on the Dimension</u>	<u>Job Title</u>
39	San Diego	-	Management Analyst
19	San Diego	+	Computer Specialist
62	San Diego	-	Property Disposal Assistant
206	Washington	+	Program Analyst
174	Washington	+	General Supply Officer
165	Washington	+	Deputy Commander, Administrative Management Analyst Officer

An important pattern emerges when one examines the algebraic signs of the correlations of the positions with Dimension II in Table V-3. The Washington jobs associated with this dimension have, with one exception, positive correlations with the dimension, but the San Diego jobs associated with this dimension have negative correlations, with only two exceptions. High positive scores on Dimension II occur when respondents feel that the task items associated positively with this dimension (see Table V-3 for these task items) are important components of their jobs. Thus, this dimension seems to differentiate among the 100 supply positions along a broad power and authority continuum.

Dimension III had only two task inventory items significantly related to it, with all other task items having only trivial correlations with the locations of the 100 jobs on the dimension. Task item number 141, addressing working with persons whose interests conflict with the incumbent's position demands, related positively to this dimension. Task item number 151, address-

sing the need to have first-hand contact with customers of the organization, had a negative association with Dimension III. Hence, positions scoring negatively on Dimension III are positions in which relationships with customers of the organization are important. Positions scoring positively on Dimension III are positions in which relating to the organization's "customers" tends to be unimportant, but working with persons whose interests conflict with those of the incumbent tends to be important.

Many jobs are strongly related to Dimension III as can be seen from examining Table V-3, and a number of positions had particularly noteworthy associations with Dimension III.

<u>DIMENSION III</u>			
<u>Position Number</u>	<u>Command</u>	<u>Position's Location on the Dimension</u>	<u>Job Title</u>
21	San Diego	-	Equipment Specialist, General
20	San Diego	+	Supvy Equip. Spec. Gen
56	San Diego	+	Budget Analyst
166	Washington	+	Management Analyst
158	Washington	-	Branch Head
190	Washington	-	Supply Management Specialist
181	Washington	+	Computer Systems Analyst
52	San Diego	+	Procurement Assistant
62	San Diego	-	Property Disposal Assistant
87	San Diego	+	Supvy Labor Management Relations Specialist

Because of the task items and jobs related to Dimension III, the research group suggests this dimension be interpreted and labeled as "Interpersonal Demands". The validity of this interpretation should be checked with position incumbents, however.

Dimension IV had negative correlations with eight task items (these items are listed in Table V-3), and positive correlations with two task items. Both of the task items having positive correlations address dealing with the public, while the items having negative correlations were concerned with paying organizational obligations, avoiding the disclosure of confidential information or facts concerning personal difficulties, working with data of questionable reliability, and with working with persons whose interests may conflict with the incumbent's.

The positions having strong associations with Dimension IV were the following:

<u>DIMENSION IV</u>			
<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
40	San Diego	-.609	Computer Specialist

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
52	San Diego	+ .468	Procurement Assistant
68	San Diego	- .410	Inventory Management Specialist
80	San Diego	+ .477	Computer Specialist
178	Washington	+ .426	Planning & Policy Br., Act. Dir.
181	Washington	+ .494	Computer Systems Analyst
206	Washington	- .420	Program Analyst

The research team's tentative interpretation of Dimension IV is "Concern with the Organization's Reputation."

Dimension V has been labeled "Preservation of Organizational Assets", based upon the nature of the task items significantly related to it. Positions having high relationships with this dimension were:

DIMENSION V

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
26	San Diego	+ .427	Personnel Officer
38	San Diego	+ .428	Head Supv. Equip. Spec. Gen.
186	Washington	- .449	Printing Officer
176	Washington	- .388	Head, Mutual Security Program Br.

The Washington jobs had a relationship to Dimension V that was opposite in direction to that of the San Diego jobs. High negative scores on Dimension V (such as obtained by positions 176 and 186) are developed when respondents feel task items having negative correlations with the dimension represent tasks important to their jobs. The complete listing of the task items having significant correlations with Dimension V is included in Table V-3. The task items having the highest correlations (both having negative correlations) with this dimension were: "Establish effective expense controls", and "Consolidate estimates from various sources". A number of other items having similar content also have negative associations with Dimension V. Four task items had positive associations with this dimension. Two of these four items concerned relationships with subordinates, while the other two items dealt with relationships with unions and the public.

Dimension VI has been labeled "Performing Line-Staff Functions" based upon the task inventory items and positions related to the dimension. Several positions were strongly related to this dimension. These positions were:

DIMENSION VI

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
25	San Diego	+.658	Inventory Management Specialist
150	Washington	-.488	Tech. Advisor to the Commander
65	San Diego	-.441	Program Analyst
86	San Diego	-.414	Equip. Spec. General

All except position number 25 had positions on the negative portion of this dimension. Negative locations on Dimension VI would be brought about by respondents feeling task items having negative correlations with this dimension were important in describing their jobs. Three task items had negative correlations with Dimension VI: "Market trends 5-10 years in the future (demands for the future from the Navy and others)", "The effectiveness of a force of 100 or more personnel", and "Be capable of performing the jobs of all subordinates". Task items having positive correlations with Dimension VI address interpreting a collective bargaining agreement, securing facts and information for others, promising deliveries, and concern with product specification.

Dimensions VII through X have not been named by the research team, and interactions among the research team and position incumbents will probably be needed for the dimensions to be interpreted. The task items and positions having notable relationships with these dimensions are discussed in the next several paragraphs:

DIMENSION VII

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
15	San Diego	+.470	Procurement Assistant
29	San Diego	+.573	Computer Systems Analyst
30	San Diego	-.612	Property Disposal Assistant
39	San Diego	-.402	Management Analyst
52	San Diego	+.422	Procurement Assistant
56	San Diego	-.501	Budget Analyst
68	San Diego	-.430	Inventory Management Specialist
174	Washington	+.429	General Supply Officer
186	Washington	-.570	Printing Officer

Positive scores on Dimension VII are associated with endorsing task items such as: "Gain the respect of very important persons", "Work with information of questionable reliability", and "Involves first-hand contact with machines and their operations". Negative scores on this dimension are derived from items addressing: supervising specialists, recommending salary increases, concern with competitive products, and carrying a personal expense allowance (an item having a mean response of 0.09 on the 0 to 7 scale).

A good many positions have significant correlations with Dimension VIII. The positions having particularly strong relationships are shown below:

DIMENSION VIII

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
29	San Diego	+ .464	Computer Systems Analyst
52	San Diego	- .529	Procurement Assistant
167	Washington	- .645	Transportation Officer
180	Washington	+ .484	Head, Systems Design & Analysis

Task items associated with negative scores on this dimension address making public speeches and defining the responsibilities of supervisory personnel. Positive scores on Dimension VIII are derived from task items related to promoting the organization's products or services, working with information of questionable reliability, and maintaining the respect of a few important persons.

Dimension IX has a number of positions with low loadings upon it. The several positions having moderate loadings on this dimension were the following:

DIMENSION IX

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
71	San Diego	+ .420	Supvy Equip. Spec. General
80	San Diego	- .454	Computer Specialist
150	Washington	- .560	Tech. Advisor to the Commander
204	Washington	- .513	Mat'l Tech. Program Div. Director

Task items associated with negative scores on Dimension IX relate to making public speeches, briefing others, and personal contacts with heads of union groups. Task items related to positive scores on this dimension deal with product design, market conditions, and first-hand contact with machines and their operations. Positions receiving negative scores on Dimension IX can be viewed as ones in which the incumbents perform as representatives of the organization.

Dimension X has several Washington positions with moderate loadings on it, while the San Diego loadings are all relatively low. The positions having moderate loadings on this factor were:

DIMENSION X

<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
157	Washington	- .610	Program Manager
177	Washington	- .573	Fiscal Accounting Assistant
163	Washington	- .549	Program Analyst Officer
181	Washington	+ .606	Computer Systems Analyst
186	Washington	- .490	Printing Officer
191	Washington	+ .554	Assist. Hd, Stock Point Sys. Br.

Task items associated with negative scores appear to be related to supervision and to autonomy allowed on the job, while task items associated with positive scores refer to quality control and membership in other organizations.

Dimension XI has been labeled as "External Representation of the Organization to Other Parts of the Government", due to the content of the two task items related to it (dealing with non-DOD members of the executive branch and with members of the legislative branch). Positions having significant relationships with this dimension were:

<u>DIMENSION XI</u>			
<u>Position Number</u>	<u>Command</u>	<u>Position's location on the Dimension</u>	<u>Job Title</u>
193	Washington	+ .966	Computer Equipment Analyst
72	San Diego	+ .651	Supvy Pers. Staffing Spec.
59	San Diego	+ .552	Storage Management Specialist
44	San Diego	+ .516	Inventory Management Spec.
14	San Diego	+ .517	Contract Administrator

Position 193 had a rather astounding correlation of +.966 with Dimension XI, leading one to believe that this position incumbent frequently represents his organization to other parts of the government.

Summary of the Canonical Analysis of the Supply Positions

The main intent of this analysis was to determine the dimensions by which Supply jobs in San Diego and Washington could be described and compared. The research team does not feel overly comfortable with the results achieved, however, and feels that additional data and analyses would be required to determine the elusive dimensions. A refinement of the task inventory questionnaire should be the first step if the additional research is ever conducted.

It had been planned to use the results of the canonical analysis (a relatively small number of dimensions and the relationships of the positions to the dimensions) in the next analysis step: the development of clusters of positions placing similar behavioral requirements on their incumbents. Because of the research group's uneasiness with the results of the canonical correlation analysis, the analyses leading to clusters of positions used the responses to all 188 task items on the questionnaire -- rather than using the loadings of those positions on a set of dimensions determined via canonical analysis. The cluster analysis of the Supply positions is described later in this section of the report.

Canonical Correlations Results for Finance Occupations

Computer program and data storage constraints limited the canonical correlation analysis to 40 NRFC positions from San Diego, and 48 Washington, D.C. NAVCOMPT positions. Thus, all of the data from Washington were used, but nine sets of responses were chosen randomly and eliminated from the San Diego responses.

Position Number*	Average Response**	Standard Deviation of the Responses to the 188 Item Inventory from this Position
81	1.49	2.52
82	0.88	1.23
83	1.24	2.41
84	2.35	2.18
85	0.96	1.49
86	1.23	1.97
87	1.62	2.31
88	1.66	2.33
89	1.32	2.00
90	2.39	2.73
91	1.28	2.33
92	1.96	1.97
93	1.58	2.06
94	1.11	1.98
95	1.48	2.05
96	2.24	2.34

* See Appendix 2. for job title-position number listings.

** The response scale for each of the task inventory statements ran from zero through seven.

Table V-5 displays the task 188 response statistics obtained from all 96 Finance positions. Task items with higher means are those that were viewed by the respondents as being substantial parts of their positions. The task items having response means indicating tasks viewed as being of substantial importance were:

- Item 10: Verify important facts before they become part of a record.
- Item 50: Secure facts and information for others.
- Item 142: Sit at a desk at least 20 hours per week.
- Item 138: Be very careful to avoid inadvertent disclosure of confidential information.
- Item 157: Offers an opportunity to utilize professional training.
- Item 158: Involves dealing with persons within the organization of substantially higher rank.
- Item 169: Involves meeting problems produced by factors over which I have no control.
- Item 175: Involves many regularly assigned duties.
- Item 177: Directly affects the quality of the organization's products or services.
- Item 183: Involves working under constant pressure to meet deadlines.
- Item 185: Involves dealing with other Navy commands.

Task items having low means and low standard deviations represent tasks perceived by most respondents as being unimportant to their positions. Item 94, "Sales quotas", which had a mean and a standard deviation both equal to exactly zero, was certainly seen as a task that was not a part of the Finance positions surveyed. Some of the other tasks that were perceived as unrelated to the respondents' positions were:

TABLE V-5

Task Item Response Statistics
(Sample = 97 Finance Positions)

<u>Task Inventory Item Number*</u>	<u>Mean**</u>	<u>Standard Deviation**</u>
1	2.48	2.39
2	2.91	2.39
3	0.31	0.88
4	3.38	2.64
5	1.24	2.12
6	3.45	2.69
7	2.07	2.61
8	0.97	1.77
9	1.22	1.90
10	4.12	2.39
11	2.64	2.25
12	0.53	1.09
13	0.88	2.02
14	0.95	1.82
15	3.56	2.28
16	1.10	1.86
17	3.67	2.72
18	0.86	1.85
19	3.46	2.42
20	2.53	2.49
21	1.26	1.92
22	0.40	1.28
23	2.43	2.30
24	0.06	0.52
25	0.84	1.71
26	3.09	2.18
27	3.44	2.63
28	2.80	2.29
29	1.51	1.99
30	1.26	1.87
31	1.34	2.03
32	0.16	0.77
33	0.41	1.18
34	0.75	1.81
35	1.16	1.87
36	1.82	2.16
37	2.71	2.45
38	1.00	1.98
39	0.86	1.78

*A copy of the task inventory is in appendix 1.

**The response scale for each of the task inventory statements ran from zero through seven.

Task Inventory
Item Number*

Mean**

Standard Deviation**

40	1.53	2.48
41	2.18	2.67
42	1.90	2.30
43	2.53	2.42
44	4.31	2.28
45	2.99	2.44
46	0.92	1.78
47	1.73	2.20
48	1.12	1.91
49	2.11	2.43
50	4.41	1.95
51	1.16	1.77
52	2.47	2.37
53	2.45	2.50
54	2.88	2.23
55	2.62	2.40
56	1.09	2.06
57	1.57	2.35
58	2.77	2.28
59	2.56	2.64
60	2.16	2.50
61	0.63	1.64
62	1.11	1.70
63	0.74	1.70
64	0.77	1.72
65	1.10	2.14
66	1.34	2.24
67	1.96	2.31
68	0.23	1.19
69	0.99	1.93
70	0.58	1.54
71	2.06	2.32
72	2.38	2.17
73	0.75	1.70
74	2.62	2.53
75	0.63	1.58
76	1.29	2.24
77	1.41	2.11
78	0.47	1.12
79	2.16	2.48
80	2.21	2.53
81	0.65	1.60
82	1.11	1.95
83	1.07	1.89
84	1.40	2.11

Task Inventory Item Number*	Mean**	Standard Deviation**
85	0.37	0.99
86	0.32	0.88
87	1.37	2.25
88	1.79	2.20
89	0.48	1.16
90	0.62	1.55
91	0.30	1.05
92	1.30	2.04
93	0.94	1.97
94	0.0	0.0
95	0.09	0.65
96	0.56	1.41
97	0.51	1.44
98	1.31	2.02
99	1.29	2.02
100	0.27	0.90
101	0.39	1.25
102	1.55	2.02
103	2.67	2.70
104	0.93	1.62
105	0.46	1.17
106	0.16	0.80
107	0.31	0.88
108	1.57	2.03
109	0.58	1.38
110	0.35	1.11
111	0.46	1.12
112	0.23	0.98
113	1.37	1.93
114	0.44	1.36
115	1.00	1.85
116	1.79	1.99
117	2.48	2.12
118	3.16	2.18
119	0.77	1.82
120	1.21	2.17
121	2.66	2.51
122	1.08	1.82
123	0.51	1.40
124	0.33	1.07
125	3.97	2.37
126	2.33	2.49
127	1.21	1.60
128	2.02	2.36
129	3.62	2.41
130	0.65	1.77

Task Inventory Item Number*	Mean**	Standard Deviation**
131	0.25	0.75
132	1.31	2.26
133	1.63	2.15
134	0.29	0.94
135	3.25	2.56
136	1.25	2.26
137	2.27	2.68
138	4.42	2.78
139	1.10	1.80
140	0.10	0.42
141	1.01	1.69
142	4.67	2.44
143	3.25	2.60
144	0.40	1.23
145	1.99	2.29
146	1.68	1.98
147	0.04	0.20
148	1.65	2.39
149	1.07	1.88
150	0.80	1.77
151	0.21	0.54
152	3.41	2.79
153	0.11	0.50
154	2.13	2.60
155	3.35	2.33
156	3.61	2.76
157	4.71	2.16
158	4.52	2.25
159	3.99	2.62
160	3.09	2.41
161	3.20	2.30
162	0.61	1.50
163	3.62	2.10
164	1.86	2.37
165	2.29	2.33
166	2.31	2.47
167	3.52	2.48
168	3.59	2.50
169	4.33	2.22
170	3.09	2.37
171	2.85	2.83
172	0.13	0.57
173	0.65	1.80
174	3.97	2.50
175	4.03	2.19
176	0.15	0.74

Task Inventory
Item Number*

Mean**

Standard Deviation**

177	4.65	2.22
178	3.90	2.44
179	2.81	2.43
180	3.41	2.41
181	2.55	2.55
182	3.12	3.05
183	4.26	2.33
184	3.38	2.70
185	5.21	2.25
186	0.68	1.67
187	0.95	1.84
188	0.34	1.30

- Item 3: Maintain personal contact with heads of union groups.
- Item 22: Have a public speaking engagement as often as once every six months.
- Item 24: Approve labor contracts.
- Item 33: Review reports on inventory.
- Item 68: Labor contracts.
- Item 85: Relationships with unions.
- Item 95: Merchandising policies.
- Item 100: Interpretation of details of a collective bargaining agreement.
- Item 101: What business activities the organization is to be engaged in.
- Item 105: Opportunities to promote the organization before the public.
- Item 106: New competitive products.
- Item 107: Union activities within the organization.
- Item 110: New markets for the organization's products/services.
- Item 111: Engineering standards.
- Item 112: Details of a collective bargaining agreement.
- Item 114: The effectiveness of a force of 100 or more personnel.
- Item 124: Market conditions affecting the users of the organization's products/services.
- Item 131: Be active in community affairs.
- Item 134: Maintain membership in one or more clubs.
- Item 140: Take a leading part in local community projects.
- Item 144: Participate in outside activities to increase the prestige of the organization.
- Item 147: Maintain membership in two or more business organizations.
- Item 151: Maintain active membership in two or more professional organizations.
- Item 153: Be an active member of at least one civic organization.
- Item 172: Provides an organization's automobile for my use.
- Item 176: Carries a personal expense allowance.
- Item 188: Involves dealing with representatives of the judicial branch of government.

The canonical correlation analysis yielded 14 significant factors. Table V-6 displays the statistics concerning these factors. These factors account for the relationships among the finance positions in both locations and also explain the differences among the jobs at each location.

After the factors were statistically extracted from the data, the next step was to rotate the factors so that (ideally):

- a. Each factor would have some positions which were highly (positively and/or negatively) related to it.
- b. Each position would have high relationships with only one or two factors, and its relationship with the other factors would be zero.

These two goals are psychologically appealing because their achievement yields a set of factors that are (usually) interpretable and, hence, practically useful. Further, if any given position (job) can be described in terms of a small set of variables -- at least smaller than 188, the size of the original task inventory -- it would be relatively easy to describe and compare the positions.

TABLE V-6

Dimensions Determined from the Canonical
Correlations Analysis and Tests for their Significance
(Data were from 88 Finance Positions)

<u>Dimensions (Factors)</u>	<u>Canonical Correlation</u>	<u>Chi- Square</u>	<u>Degrees of Freedom</u>
1	.973	3600.07	1920
2	.932	3179.75	1833
3	.908	2887.40	1748
4	.906	2637.55	1665
5	.856	2390.45	1584
6	.848	2201.50	1505
7	.838	2019.57	1428
8	.820	1845.46	1353
9	.799	1685.68	1280
10	.777	1539.98	1209
11	.767	1407.02	1140
12	.755	1279.65	1073
13	.741	1158.59	1008
14	.713	1044.47	945

The rotation yielded one somewhat surprising result: the first factor had only trivial relationships with all of the 88 positions after the rotation had been completed. The most plausible explanation for this finding would seem to be that Factor I is a factor defining a very minor but general similarity among all of the 88 finance jobs studied.

Table V-7 presents the finance positions having high associations with the remaining 13 factors.

TABLE V-7

Finance Positions having Significant
Relationships with the Rotated Factors
(Relationships greater than +/- .30 are those included)

FACTOR II

<u>Command</u>	<u>Factor Loading</u>	<u>Position</u>
San Diego	.91	Supervisory Computer Aide
San Diego	-.78	Computer Programmer
San Diego	.36	Voucher Examiner Supervisor
San Diego	-.38	Disbursing Specialist
San Diego	.38	Disbursing Specialist
San Diego	-.40	Supervisory Accounting Technician
Washington	-.32	Management Analyst
Washington	.63	Program Manager
Washington	.30	Systems Accountant
Washington	.73	Military Pay Regulations Specialist

<u>Location</u>	<u>Factor Loading</u>	<u>Position</u>
Washington	-.31	Computer Specialist

FACTOR III

San Diego	-.38	Supervisory Disbursing Specialist
San Diego	-.45	Management Analyst
San Diego	.31	Disbursing Specialist
San Diego	.57	Supervisory Accounts Maintenance Clerk
San Diego	.48	Military Pay Supervisor
San Diego	.39	Computer Specialist
Washington	-.52	Program Manager
Washington	-.56	Supervisory Systems Accountant
Washington	-.30	Program Analyst
Washington	.42	Military Pay Regulations Specialist
Washington	.59	Computer Operations Supervisor
Washington	.34	Director, ADP Operations Division
Washington	.35	Computer Specialist
Washington	.35	Program Analyst

FACTOR IV

San Diego	.35	Computer Specialist
San Diego	-.33	Computer Specialist
San Diego	.32	Computer Specialist
San Diego	.69	Computer Specialist
San Diego	-.49	Disbursing Specialist
San Diego	.89	Supervisory Accounting Technician
San Diego	-.50	Supervisory Accounts Maintenance Clerk
San Diego	.32	Military Pay Supervisor
Washington	-.36	Program Manager
Washington	.51	Program Analyst
Washington	.30	Computer Specialist
Washington	-.40	Program Analyst
Washington	-.39	Dir. Program/Budget Systems Ops

FACTOR V

San Diego	-.39	Computer Specialist
San Diego	-.30	Computer Specialist
San Diego	.33	Supervisory Disbursing Specialist
San Diego	.45	Supervisory Accounting Technician
San Diego	-.66	Supervisory Accountant
San Diego	-.63	Management Analyst
San Diego	.53	Supervisory Fiscal Accounting Officer
Washington	-.50	Management Analyst
Washington	.30	Program Analyst
Washington	-.55	Fiscal Accountant Assistant
Washington	-.35	Program Analyst
Washington	.42	Acting Head Secretariat Accounts Branch
Washington	-.79	Director, Admin Services Div*
Washington	.51	Program Analyst

*Position incumbent responded "LCDR, USN" on task inventory when asked his grade.

<u>Location</u>	<u>Factor Loading</u>	<u>Position</u>
<u>FACTOR VI</u>		
San Diego	.30	Office Services Supervisor
San Diego	-.39	Supervisory Mail/File Clerk
San Diego	.37	Computer Specialist
San Diego	-.31	Voucher Examiner Supervisor
San Diego	.67	Disbursing Specialist
San Diego	-.60	Disbursing Specialist
San Diego	-.30	Supervisory Accountant
San Diego	-.49	Fiscal Accounting Assistant
San Diego	-.30	Computer Specialist
Washington	.44	Branch Head, Nonapprop. Funds & Spec Systems
Washington	-.47	Computer Specialist
Washington	-.53	Computer Specialist
Washington	.53	Computer Specialist
Washington	-.51	Acting Head Secretariat Accounts Branch
Washington	.52	Supervisory Accounting Assistant
Washington	.42	Program Analyst

FACTOR VII

San Diego	-.56	Fiscal Accounting Supervisor
San Diego	.45	Computer Specialist
San Diego	-.42	Disbursing Specialist
San Diego	-.32	Computer Programmer
San Diego	-.35	Supervisory Disbursing Specialist
San Diego	.60	Disbursing Specialist
San Diego	.77	Military Pay Supervisor
San Diego	.50	Military Pay Supervisor
San Diego	-.64	Supervisory Fiscal Accounting Officer
Washington	.41	Management Analyst
Washington	-.35	Budget Officer
Washington	.35	Computer Specialist
Washington	-.67	Systems Accountant
Washington	.57	Program Analyst
Washington	.41	Ops Research Analyst
Washington	-.33	Program Analyst

FACTOR VIII

San Diego	.32	Voucher Examiner Supervisor
San Diego	-.30	Computer Specialist
San Diego	.33	Disbursing Specialist
San Diego	-.56	Management Analyst
San Diego	-.32	Disbursing Specialist
San Diego	.57	Management Analyst
San Diego	.34	Supervisory Accounts Maintenance Clerk
Washington	-.50	Supervisory Fiscal Accounting Officer
Washington	-.54	Budget Officer
Washington	.85	Systems Accountant

<u>Location</u>	<u>Factor Loading</u>	<u>Position</u>
Washington	-.69	Systems Accountant
Washington	-.31	Director, Functional Systems Div
Washington	.35	Computer Specialist
Washington	-.41	Director ADP Ops Div
Washington	-.35	Program Analyst
Washington	.68	Program Analyst

FACTOR IX

San Diego	-.86	Voucher Examiner, Supervisory Typing
San Diego	.33	Computer Specialist
San Diego	.53	Computer Specialist
San Diego	.58	Voucher Examiner Supervisor
San Diego	-.37	Disbursing Specialist
San Diego	.87	Disbursing Specialist
San Diego	.41	Voucher Examiner Supervisor
San Diego	-.44	Disbursing Specialist
Washington	.44	Director, Functional Systems Division
Washington	.66	Military Pay Regulations Specialist
Washington	-.70	Computer Specialist
Washington	.48	Computer Specialist
Washington	.91	Data Control Branch Head

FACTOR X

San Diego	.40	Computer Specialist
San Diego	-.38	Voucher Examiner Supervisor
San Diego	.49	Supervisory Disbursing Specialist
San Diego	.33	Disbursing Specialist
San Diego	-.38	Computer Specialist
San Diego	.42	Voucher Examiner Supervisor
Washington	-.48	Budget Officer
Washington	-.48	Program Manager
Washington	-.56	Computer Specialist
Washington	.38	Supervisory Accounting Assist.
Washington	.30	Data Control Branch Head

FACTOR XI

San Diego	.32	Computer Specialist
San Diego	-.32	Voucher Examiner Supervisor
San Diego	-.73	Digital Computer Sys. Admin.
Washington	-.31	Program Manager
Washington	.32	Fiscal Accountant
Washington	.32	Computer Specialist

<u>Location</u>	<u>Factor Loading</u>	<u>Position</u>
<u>FACTOR XII</u>		
San Diego	.61	Computer Programmer
San Diego	.46	Supervisory Accountant Maint. Clerk
San Diego	.54	Disbursing Specialist
Washington	.39	Program Manager
Washington	.89	Systems Accountant
Washington	.56	Systems Accountant
Washington	-.52	Program Analyst

<u>FACTOR XIII</u>		
San Diego	.75	Disbursing Specialist
San Diego	-.40	Disbursing Specialist
San Diego	-.64	Disbursing Specialist
San Diego	-.40	Supervisory Accounting Technician
San Diego	.35	Military Pay Supervisor
Washington	-.55	Fiscal Accountant
Washington	.63	Military Pay Regulations Specialist
Washington	.33	Military Pay Regulations Specialist
Washington	.75	Computer Specialist
Washington	.60	Ops Res Analyst

<u>FACTOR XIV</u>		
San Diego	-.66	Office Services Supervisor
San Diego	-.33	Disbursing Specialist
San Diego	.75	Computer Specialist
San Diego	-.39	Supervisory Accounting Technician
Washington	-.31	Management Analyst
Washington	-.31	Budget Officer
Washington	.36	Supervisory Systems Accountant
Washington	-.39	Systems Accountant
Washington	.36	Fiscal Accountant
Washington	-.44	Military Pay Regulations Specialist
Washington	.59	Computer Specialist
Washington	-.46	Acting Head Secretariat Accounts Branch

All of the factors reported in Table V-7 have positions representing both San Diego and Washington commands. A factor loading for a position in Table V-7 can be thought of as being analogous to the distance of that position from the origin on an axis in a coordinate system. Using this analogy, and looking at the factor loadings for Factor II in Table V-7 as examples, the position of Supervisory Computer Aide in San Diego is near the positive extreme on Factor II, while one computer programmer in San Diego is near the negative extreme of Factor II. The other positions reported for Factor II are represented by points between the two aforementioned observed extremes. It must be kept in mind, however, that the results for all 13 of the useable factors have to be consulted

when comparing positions with one another.

The positions for which task inventories were completed included fewer jobs than positions, hence, there are, for instance, several Disbursing Specialists, Computer Programmers, and so on, represented in the data. As there was no attempt to have only task inventory data from one position for each job, the results in Table V-7 often show more than one position of a certain type of job as being associated with the same factor. Such a finding is well and good, and it reaffirms one's faith in the sensibleness of the Civil Service job classification system. On the other hand, when all the identically titled positions in the sample do not end up with high similar patterns of factor loadings, suspicions arise about the task inventory, the analyses conducted using the task data, and about the Civil Service grades and classifications assigned the bumptious positions.

The research team had accumulated sufficient prior experience in such analyses to suspect, apriori, that data from identically named positions would not always yield the same factor loading patterns. However, rather than duck this potential problem by eliminating "duplicate" positions or by averaging the task data over such positions, the researchers decided to let the data speak for themselves.

As the factors presented in Table V-7 each have a variety of positions related to them, rather than one factor having, say, only Disbursing Specialists related to it, and each of the other factors also having only one type of job apiece loading on them, attempts at interpreting the "meanings" of the factors required a further step. In this next step, the responses of the 88 position incumbents to the 188 task items are used in correlation analyses.

Because each of the 88 positions had loadings on each of the 13 useful factors, and because each of these positions had been described in terms of each of the 188 task items in the task inventory (see Appendix 1), the correlations could be computed among the 13 sets of 88 factor loadings and the 188 sets of 88 task item responses. Through this correlational analysis, task items having significant relationships with the factors could be identified. Then, the set of task items related to a particular factor can be used in interpreting the meaning of that factor. The task items having statistically significant correlations with the factors are presented in Table V-8.

TABLE V-8

Task Items having Significant Correlations with the Finance Factors

<u>Task Item Number</u>	<u>Correlation</u>	<u>Task Statement</u>
<u>FACTOR II</u>		
15	.23	On the average spend at least one hour per day completing routine paperwork.
73	-.22	Development of new business.
83	-.22	Proper handling of other than personal monies.
102	-.20	Long-range trends in management thinking
116	-.25	Pilot projects.
117	-.20	Sizing up people.
118	-.19	Evaluating new ideas.
123	-.22	New markets for future products/services.
163	-.20	Allows great freedom of action.
175	.19	Involves many regularly assigned duties.
180	.22	Involves activities that are not closely supervised or controlled.
184	.29	Involves working with members of other armed services or the DOD.
<u>FACTOR III</u>		
5	.29	Nominate key personnel in the organization for promotion.
10	-.20	Verify important facts before they become part of a record.
18	-.18	Make recommendations on matters at least as important as the construction of a new plant, or warehouse.
33	.19	Review reports on inventory.
45	.20	Plan the best use of available facilities.
57	.22	Make recommendations for salary increases.
74	.22	Enforcement of rules and regulations.
75	.18	Control of inventories.
77	.25	Protection of organization's property.
87	.29	Delivery schedules.
119	.30	Responsibility for items having a value of at least \$100,000
128	.22	Human Relations practices.
134	-.23	Maintain membership in one or more clubs.
164	.29	Involves very frequent contact with the public.
166	.22	Involves first-hand contact with machines and their operations.
182	-.23	Is considered a staff rather than line position.
185	-.19	Involves dealing with other Navy commands.

<u>Task Item</u> <u>Number</u>	<u>Correlation</u>	<u>Task Statement</u>
<u>FACTOR IV</u>		
10	.24	Verify important facts before they become part of a record.
36	.25	Assist project representatives on large projects.
79	.26	Preparation of standards and/or specifications.
82	.27	Promotion of the organization's products/services.
110	.24	New markets for the organization's products/services.
140	-.20	Take a leading part in local community projects.
142	-.31	Sit at a desk at least 20 hours per week.
147	-.22	Maintain membership in two or more business organizations.
159	.18	Involves first-hand contact with customers of the organization.

<u>FACTOR V</u>		
24	.18	Approve labor contracts.
32	.20	Bargain with union representatives.
44	-.24	Trouble-shoot special problems as they arise.
51	-.18	Serve as a member of one or more committees concerned with organizational policy.
53	-.21	Serve as a consultant in work with branches of the organization.
61	.18	Preparation of an annual budget of at least \$200,000.
131	-.18	Be active in community affairs.
140	-.34	Take a leading part in local community projects.
155	.24	Make decisions without consulting others.
161	.36	Is within the normal path of promotion to higher levels.
163	.18	Allows great freedom of action.
165	.20	Involves maintaining the highest respect of a few important persons.
170	.20	Allows me to make decisions that are not subject to review.
172	.22	Provides an organization's automobile for my use.
173	.27	Entitles me to my own secretary.
174	.20	Involves close association with women personnel.
181	.21	Provides an office that is located in one of the more desirable areas.

<u>FACTOR VI</u>		
39	.18	Establish effective expense controls.
62	.19	Optimum return on investments of the organization.
73	.20	Development of new business.
75	.20	Control of inventories.
76	.18	Improvements in product design.
81	.21	Pricing organization products/services.
82	.22	Promotion of the organization's products/services.
101	.20	What business activities the organization is to be engaged in.
109	.18	Maintenance of proper inventories.
110	.25	New markets for the organization's products/services.
124	.19	Market conditions affecting the use of the organization's products/services.

<u>Task Item Number</u>	<u>Correlation</u>	<u>Task Statement</u>
127	.21	Development of management trainees.
138	.31	Be very careful to avoid inadvertent disclosure of confidential information.
144	-.30	Participate in outside activities to increase the prestige of the organization.
148	.24	Present the organization to the public in its best light.
153	-.29	Be an active member of at least one civic organization.
154	.28	Refrain from public criticism of the organization's operations.
155	.36	Make decisions without consulting others.
162	-.26	Offers an opportunity to work with the more influential people within the surrounding community.
168	.19	Involves the "goodwill" of the organization.
170	.18	Allows me to make decisions that are not subject to review.
176	-.18	Carries a personal expense allowance.
183	.20	Involves working under constant pressure to meet deadlines.
186	-.21	Involves dealing with representatives of the legislative branch of government.

FACTOR VII

27	.21	Appraise the results of operations.
28	.18	Anticipate new and/or changed demands for products/ services.
37	.19	Analyze regularly the effectiveness of operations.
55	.18	Brief others on the contents of reports, letter, etc.
58	.24	Serve as a consultant in the interpretation of data.
80	-.23	Reduction of costs.
108	-.25	Over- or under-staffing of jobs.
115	.19	Proposed legislation that might affect the organization.
146	-.18	Work with information of questionable reliability.
149	-.21	Avoid publicity associated with personal difficulties.
152	-.20	Get to know each person under me.
154	-.25	Refrain from public criticism of the organization's operations.
172	-.20	Provides an organization's automobile for my use.

FACTOR VIII

26	.20	Make suggestions for improvements in organization's products/services.
27	-.24	Appraise the results of operations.
39	-.21	Establish effective expense controls.
43	-.22	Devise procedures to properly reflect the results of operations.
92	-.22	Promises of delivery that are difficult to meet
95	-.29	Merchandising policies.
125	-.20	Efficiency of operations.
129	-.18	Consolidation of data/info from numerous sources.
137	-.22	Avoid the use of any kind of profanity.
140	.19	Take a leading part in local community projects.

<u>Task Item Number</u>	<u>Correlation</u>	<u>Task Statement</u>
151	.25	Maintain active membership in two or more professional organizations.
163	-.19	Allows great freedom of action.
165	-.23	Involves maintaining the highest respect of a few important persons.
172	-.27	Provides an organization's automobile for my use.
173	-.18	Entitles me to my own secretary.
179	-.23	Involves very few routine activities.
181	-.20	Provides an office that is located in one of the more desirable areas.

FACTOR IX

5	.21	Nominate key personnel in the organization for promotion.
16	.19	Approve transfers of personnel from one job to another.
40	.29	Supervise a team of specialists.
41	.19	Represent the CO outside the organization.
44	.19	Trouble-shoot special problems as they arise.
56	.19	Define areas of responsibility for supervisory personnel.
129	-.20	Consolidation of data/info from numerous sources.
159	.21	Involves first-hand contact with customers of the organization.
163	.28	Allows great freedom of action.
170	.19	Allows me to make decisions that are not subject to review.
184	.19	Involves working with members of other armed services or the DOD.

FACTOR X

117	-.26	Sizing up people.
118	-.18	Evaluating new ideas.
133	.18	Even during most relaxed social occasions, avoid deviations from generally accepted behavior.
134	-.21	Maintain membership in one or more clubs.
173	.17	Entitles me to my own secretary.
184	-.19	Involves working with members of other armed services or the DOD.

FACTOR XI

5	-.30	Nominate key personnel in the organization for promotion.
6	-.25	Make assignments of jobs to subordinates.
16	-.38	Approve transfers of personnel from one job to another.
17	.23	Keep detailed and accurate records.
18	-.25	Make recommendations on matters at least as important as construction of a new plant/warehouse.
20	-.25	Make analyses of statistical reports.
23	-.25	Be involved in establishing objectives for the organization.
25	-.31	Justify capital expenditures.
28	-.21	Anticipate new and/or changed demands for products/services.

<u>Task Item Number</u>	<u>Correlation</u>	<u>Task Statement</u>
29	-.28	Serve on a committee concerned with appraisal of performance.
30	-.18	Compute the costs of producing products/services.
31	-.26	Set profit (efficiency) objectives for operating groups.
35	.19	Furnish guidance to others in the preparation of budget.
37	-.27	Analyze regularly the effectiveness of operations.
38	-.24	Review budgets for operation.
40	-.20	Supervise a team of specialists.
41	-.24	Represent the CO outside the organization.
42	-.31	Analyze operating performance reports.
47	-.22	Make use of staff people.
48	-.20	Consolidate estimates from various sources.
49	-.28	Evaluate records of production.
51	-.30	Serve as a member of one or more committees concerned with organizational policy.
52	-.25	Set goals for future performance.
56	-.30	Define areas of responsibility for supervisory personnel.
57	-.25	Make recommendations for salary increases.
58	-.22	Serve as consultant in interpretation of data.
59	-.22	Keep constant check upon activities of subordinates.
60	-.31	Long-range objectives of the organization.
61	-.35	Preparation of annual budget of at least \$200,000.
62	-.32	Optimum return on investments of the organization.
63	-.24	Preservation of capital assets.
66	-.19	Expenditure of sums exceeding \$10,000 in routine matters.
69	-.21	Define areas of responsibility for supervisory personnel.
71	-.26	Forecasting future trends or events.
88	-.22	Coordination of activities of many subdivisions of org.
96	-.44	Market trends 5 to 10 years in the future.
98	-.24	Employee attitude surveys.
102	-.23	Long-range trends in management thinking.
113	-.20	The long-range potentialities of the organization.
117	-.22	Sizing up people.
119	-.18	Responsibility of items having value of at least \$100,000.
128	-.18	Human relations practices.
132	.35	Avoid identification with radical political elements.
133	.22	Relaxed social occasions/avoid deviations from ac. behav.
136	.23	Avoid public comment critical of good customer.
137	.24	Avoid use of any kind of profanity
154	.23	Refrain from public criticism of org.'s operations.
155	-.25	Make decisions without consulting others.
156	-.31	Signifies membership in top or middle management.
157	-.20	Offers opportunity to utilize professional training.
160	-.25	Assures incumbent will be noticed by top management.
164	.19	Involves very frequent contact with public.
167	-.35	Offers opportunity to gain experience in management.
170	-.23	Allows me to make decisions not subject to review.
171	-.35	Managing important part of the organization.
173	-.24	Entitles me to my own secretary.
179	-.20	Involves very few routine activities.
181	-.21	Provides an office located in more desirable area.
184	-.17	Working with other armed services or DOD.

<u>Task Item Number</u>	<u>Correlation</u>	<u>Task Statement</u>
<u>FACTOR XII</u>		
2	-.29	Forecast volume of work to be done in near future.
36	-.22	Assist project representatives on large projects.
45	.18	Plan the best use of available facilities.
48	-.18	Consolidate estimates from various sources.
52	-.20	Set goals for future performance.
54	-.24	Brief others on contents of reports, letters, etc.
118	-.21	Evaluating new ideas.
125	-.21	Efficiency of operations.
128	-.18	Human relations practices.
130	-.23	Refrain from activities implying sympathy for unions.
131	-.24	Be active in community affairs.
132	-.23	Avoid identification with radical political elements.
133	-.28	Relaxed occasions/avoid deviation from accept. behav.
136	-.29	Avoid public comment critical of good customer.
138	-.20	Avoid inadvertent disclosure of confidential info.
141	-.29	Work w/persons with conflicting interests.
143	-.18	Be capable of performing jobs of all subordinates.
144	-.20	Work in outside activities to increase prestige of org.
145	-.22	Gain respect of very important persons.
147	-.19	Membership in 2 or more business organizations.
149	-.18	Avoid publicity associated with personal difficulties.
150	-.18	Refrain being seen at place of less than high repute.
154	-.34	Refrain from public criticism of org.'s operations.
156	-.30	Membership in top or middle management.
160	-.32	Assures incumbent will be noticed by top management.
165	-.39	Maintain highest respect of a few important persons.
168	-.21	Involves "good will" of organization.
169	-.22	Meet problems produced by non-self-controlled factors.
171	-.24	Managing an important part of organization.
180	-.22	Activities not closely supervised or controlled.
181	-.22	Office located in more desirable area.
182	-.18	Is considered a staff rather than line position.
184	-.18	Working with other armed services or DOD.

FACTOR XIII

8	.20	Visit each of the organization's major units at least once a year
12	-.22	Make speeches at public gatherings.
26	-.19	Make suggestions for improvement in organization's products/services.
135	.21	Keep informed about the latest technical developments in a professional area.
138	.18	Be very careful to avoid inadvertent disclosure of confidential information.
168	-.32	Involves the "goodwill" of the organization.

<u>Task Item</u> <u>Number</u>	<u>Correlation</u>	<u>Task Statement</u>
9	-.24	Write or dictate at least 25 letters per week.
16	-.27	Approve transfer of personnel from one job to another.
33	-.19	Review reports on inventory
34	-.31	Analyze expense items involving a gross of at least \$5,000.
35	-.36	Furnish guidance to others in preparation of budgets.
38	-.28	Review budgets for operations.
39	-.23	Establish effective expense controls.
43	.22	Devise procedures to reflect results of operation.
46	-.29	Explain divergence between budget & actual expenditures.
48	-.20	Consolidate estimates from various sources.
53	.27	Serve as consultant in work w/branches of org.
58	.18	Serve as consultant in interpretation of data.
69	-.19	Define responsibility areas of supervisory personnel.
74	-.18	Enforcement of rules & regulations.
75	-.22	Control of inventories.
81	-.28	Pricing organization products/services.
108	-.23	Over- or under-staffing of jobs.
120	.18	Redesign of products to reduce costs.
126	-.19	Quarterly (or more frequent) reports on operations.
127	-.19	Development of management trainees.
130	-.21	Refrain from activities implying sympathy for unions.
132	-.29	Avoid identification with radical political elements.
134	-.22	Maintain membership in one or more clubs.
135	.29	Keep up on technical developments in professional area.
139	.24	Spend as much as 50 hours per week on the job.
146	.26	Work with information of questionable reliability.

Summary of the Canonical Correlation Analysis of the Finance Positions

After pondering the data for a factor in Table V-7, and the data for that same factor in Table V-8, one attempts to decipher the interpretation meaning to be given that factor. Unfortunately, the research team has proceeded through those steps and has found no particularly compelling interpretations they could assign to the factors. Hence, the factor interpretations given in Table V-9 are admittedly speculative. Probably the best and easiest next step that could be pursued in interpreting these factors would have position incumbents from the Washington, D.C. level work with members of the research team in reviewing the data presented in Tables V-7 and V-8. First-hand knowledge concerning the positions surveyed would help a great deal in interpreting the 13 factors.

The research team had hoped that at this point of the analysis it would have a set of factors with very clear interpretations which could have then been used in forming groupings of positions and in searching for career paths among the positions. This intended analysis would have used the locations of the 88 positions on the 13 factors as data input into the required additional analyses. Because of the researchers' discomfiture, however, a different tack was chosen for the next phase of the analysis. The method of analysis chosen for this next phase used the position incumbents' responses to the 188 items in the task inventory rather than using the positions' locations on a relatively few factors. The succeeding part of this section of the report describes the work (cluster analysis) conducted in the next step.

TABLE V-9

Tentative Appellations Assigned the 13 Useable
Factors Found for the Finance Positions

<u>FACTOR NUMBER*</u>	<u>Title Assigned Factor</u>
II	Planning - I
III	Staff vs. Line Responsibilities
IV	Representation of the Organization
V	Supervision
VI	Preservation of Organizational Assets
VII	Control - I
VIII	Concern with Organizational Reputation
IX	Supervision - Human Relations
X	Personal Demands
XI	Exercise of Broad Power and Authority
XII	Planning - II
XIII	Providing a Staff Service
XIV	Control - II

*Factor I was not included for a reason stated earlier in the report:
All positions had very low relationships with it.

Cluster Analysis of Finance and Supply Positions

This portion of the report summarizes the use of a cluster analysis technique for partitioning a group of people into subsets or clusters of people having similar jobs. The task inventory questionnaire (see Appendix 1) was used for this analysis. The task inventory contains a number of questions relating to job characteristics, and the individual questionnaire items of necessity overlap to some degree in the sense that a number of them may be measuring quite similar attributes. Thus, the general technique is to obtain rather extensive data which may be less well structured than an ideal study would normally provide, and from this mass of data to extract whatever patterns "naturally" emerge.

The procedure thus begins with the administration of task inventories to a set of people. The questionnaire consists of 188 questions, the response to each of which is a numerical value between 0 and 7, inclusive. These questionnaires are then transcribed to punched cards and the results tabulated for each question and for each individual. From this raw questionnaire data, it is then possible to compute, using standard statistical techniques already available on many computers, a "similarity matrix". This matrix is a square array of numbers which has the property that the number in a given row and column of the array measures the degree of overall similarity between the person corresponding to the given row and another person corresponding to the given column. It thus gives a measure of similarity between any given pair of individuals who have responded to the questionnaire. This matrix contains the primary data used for the cluster analysis.

The cluster analysis technique attempts to partition or classify the entire group of respondents into subsets or clusters which are similar within themselves. This notion of similarity within a cluster refers back to the pairwise similarity measures provided by our matrix. Thus, if the clustering is sensible, a result of the cluster analysis should be a division of all the respondents into clusters with the property that within each cluster the individuals are more similar to one another than they are to individuals in other clusters. There are a number of techniques for performing such clustering; the method used in this research takes a similarity measure such as the one provided by the similarity matrix and provides a so-called hierarchical clustering scheme. Such a scheme, abbreviated as HCS, is a division of the initial population of individuals into clusters in several ways at once. The meaning of this is simply that if one were to impose a limit on similarity for a cluster with the intent that all pairs of people within each cluster should be at least as similar as the limit imposed, some cluster pattern could be achieved. If one were willing to relax the degree of similarity or closeness required to aggregate individuals into the same cluster, then one would expect that fewer but larger clusters could be obtained through either a separate clustering process or an aggregation of the previous smaller clusters. Thus, an HCS provides for a ladder or hierarchy of cluster patterns. At one end of the scheme all individuals fall into one large cluster. At the bottom of the scheme each individual forms a cluster consisting of himself alone. Between these two extremes lie cluster patterns of increasing degrees of fineness. The HCS is of such a nature that if at some "level of closeness" (i.e., height in the HCS "ladder") there is some number of clusters then at the next clustering "level" there will be exactly one less cluster. This may result from some "far-out" (i.e., not yet clustered) individual being incorporated into one of the previous clusters, or may result from two of the previous clusters coalescing into one larger cluster.

The HCS is obtained rather simply in practice by running the similarity matrix through a computer program called the HICLUST program. The output of HICLUST is in a form such that if one wishes to look at whatever clusters are "natural" if there are to be, say, eight clusters overall, then one inspects the section of HICLUST output corresponding to an eight cluster level of aggregation and notices which individuals are present in each of the eight clusters. On the other hand, if only four clusters are wanted, then the output of HICLUST can easily provide, at the four cluster level, which individuals are naturally present in each cluster. It is then the task of someone familiar with the original questionnaire data to examine the clustered individuals with a view toward determining which aspects of the questionnaires seem to lead to these individuals being included in the same cluster. In practice, this analysis can be carried out quite simply by determining an approximate number of clusters which is reasonable in view of the overall population. (For example, in a population of, say, 50 individuals, it might be foolish to look at a clustering pattern which provided thirty or forty clusters; in this case perhaps 5 or 6 clusters would be appropriate.) This decision is obviously a subjective one, and should therefore be carried out with the understanding that a reference back to the original data may indicate that somewhat more or fewer clusters may be more meaningful or desirable. Another aid to the choice of clustering level, or the number of clusters desired, is that there may tend to be natural jumps in the degree of similarity of people within a cluster as one goes from, say, 5 to 6 clusters.

An inspection of the results of the hierarchical clustering program is facilitated by the construction of a so-called "dendrogram", and dendrograms are used in the results sections to portray the findings.

For each set of occupations (Supply or Finance), two types of cluster analyses were conducted. The first type of clustering emphasized forming groupings of positions having high within-cluster similarity. Operationally, an incumbent in a position within a cluster formed in this way should be able to transfer successfully to the other positions in that cluster more easily than to positions in other clusters. This method can therefore be said to focus on ease of transfer.

The second cluster analysis method used with both sets of data focused on finding linkage among positions, and forming clusters of linked positions. The second cluster analysis method can therefore be viewed as identifying career paths in the sets of Supply or Finance occupations.

Supply Positions Cluster Analysis Results

The results of the two types of cluster analyses of the Supply positions will be presented in this section. The results discussed first come from the cluster analysis method which attempts to develop groupings of jobs such that a position incumbent should have a high probability of successfully transferring among the positions within the same cluster. The second set of results which will be discussed addresses the findings obtained from the cluster analysis method designed to determine career paths among the Supply positions.

Clusters Emphasizing Ease of Transfer

The question of classifying positions so that vacancies within a cluster can be filled by another individual in the same cluster was approached as follows:

From the set of 89 Washington, D.C. and 57 San Diego professional personnel (Supply Center) who responded to the 188 item task inventory questionnaire, there were selected 100 at random with 40 of these from the Washington list and 60 from the San Diego list. For these, the correlation matrix (correlations among 100 positions; computed over the 188 task items) was input to the hierarchical clustering program. The resulting dendrogram associated with this cluster analysis method appears in Figure V-2. A nine-cluster solution was chosen as producing some reasonably large (in terms of number of positions in them) clusters which have an acceptable mix of Washington and San Diego positions. The cluster lists and location of the positions appear in Table V-10.

For the five largest clusters, the task inventory cover sheet data were recovered and ranked by GS level. These appear in Table V-11. The three clusters that comingle Washington and San Diego personnel (Clusters 6, 7, and 9) exhibit a quite noticable correlation between GS level and location.

TABLE V-10

Nine Clusters Obtained from the Supply Positions*

CLUSTER I		CLUSTER II		CLUSTER III		CLUSTER IV		CLUSTER V	
Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion
28	SD	04	SD	05	SD	02	SD	52	SD
09	SD	39	SD	27	SD	16	SD	31	SD
41	SD	32	SD	10	SD	30	SD	55	SD
42	SD	54	SD	36	SD			13	SD
		60	SD	37	SD			79	DC
				12	SD			11	SD
				18	SD			68	DC
				38	SD			24	SD
				33	SD			25	SD
				22	SD			26	SD
				20	SD			29	SD
				46	SD			07	SD
				47	SD			56	SD
				58	SD			21	SD
				14	SD			88	DC
				34	SD			81	DC
				15	SD			91	DC
				64	SD			65	DC
								93	DC
								95	DC
CLUSTER VI		CLUSTER VII		CLUSTER VIII		CLUSTER IX		CLUSTER IX (Cont.)	
Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion	Posi- tion	Loca- tion
17	SD	63	DC	73	DC	43	SD	87	DC
23	SD	78	DC	74	DC	57	SD	69	DC
35	SD	82	DC	70	DC	08	SD	89	DC
		03	SD	80	DC	40	SD	100	DC
		84	DC	44	SD	01	SD	06	SD
		62	DC	77	DC	53	SD	83	DC
		61	DC	90	DC	45	SD	48	SD
		97	DC	94	DC	50	SD	72	DC
		19	SD	86	DC	66	DC	67	DC
		59	SD	92	DC	71	DC	75	DC
		98	DC	96	DC				
		49	SD						
		51	SD						
		76	DC						
		85	DC						
		99	DC						

 *Position titles are listed in Appendix 2.

TABLE V-11

Descriptive Data Concerning the Five
Largest Clusters of Supply Positions

GS LEVEL LOCATION JOB TITLE

CLUSTER III

13	DC	Editor
09	SD	Contract Administrator, Head Supervisory
09	SD	General Equipment Specialist, Supervisory
09	SD	Budget Analyst
09	SD	Marine Cargo Specialist
09	SD	Marine Equipment Specialist
07	SD	Procurement Assistant
07	SD	Procurement Assistant
07	SD	Procurement Assistant
07	SD	Inventory Management Specialist
07	SD	Inventory Management Specialist
07	SD	Inventory Management Specialist
07	SD	Inventory Management Specialist
07	SD	Inventory Management Specialist
07	SD	Inventory Management Specialist
07	SD	Property Disposal Assistant
07	SD	General Equipment Specialist
07	SD	General Equipment Specialist

CLUSTER V

14	DC	Supply Management Specialist
14	DC	Supply Management Specialist
13	DC	Supply Management Specialist
13	DC	Supply Management Specialist
13	DC	General Supply Officer
13	DC	Computer Systems Analyst
13	DC	Supply Systems Analyst
13	DC	Program Manager
11	SD	Computer Specialist
11	SD	Computer Specialist
11	SD	Computer Specialist
11	SD	Computer Specialist
11	SD	Management Analyst
10	SD	General Equipment Specialist, Head Supervisory
09	SD	Electrical Equipment Specialist
09	SD	Ord. Equipment Specialist
09	SD	Machine Equipment Specialist
09	SD	Computer Systems Analyst
09	SD	Computer Specialist
07	SD	Inventory Management Specialist

<u>GS LEVEL</u>	<u>LOCATION</u>	<u>JOB TITLE</u>
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CLUSTER VII

17	DC	Technical Advisor to Commander
15	DC	Director, Program Analysis Division
15	DC	Director, Mat. Tech. Programs Division
15	DC	Planning & Policy Branch, Acting Director
14	DC	Supply Management Specialist
14	DC	Management Analyst
14	DC	Resale Program Specialist
14	DC	Storage & Packing Branch, Head
14	DC	Budget Form. Branch, Head
13	SD	Personnel Officer
13	DC	Educational Specialist
12	SD	Labor Management Relations Specialist, Supervisory
12	DC	Fiscal Accounting Assistant
12	SD	Personnel Staffing Specialist, Supervisory
11	SD	Personnel Staffing Specialist
09	SD	Inventory Management Specialist

CLUSTER VIII

15	DC	Asst. Dir., Program Appraisal & Mgmt. Info. Sys. Br.
15	DC	Stock Point Systems Branch Head
15	DC	Printing Officer
15	DC	Transportation Officer
14	DC	Program Analysis Officer
15	DC	Program Analysis Officer
13	DC	Program Analyst
13	DC	Storage Management Specialist
13	DC	Computer Equipment Analyst
12	DC	Supply Management Analyst
11	DC	Activity Representative
11	SD	Program Analyst

CLUSTER IX

15	DC	Internal Logical Staff Dept. Director
15	DC	Assistant Deputy Commander Procurement Management
15	DC	Deputy Commander Admin Mgmt Analysis Officer
14	DC	Supply Management Officer
14	DC	Director, Procurement Policy & Planning Division
14	DC	Head, Mutual Security Program Branch
14	DC	Branch Head
14	DC	Branch Head
14	DC	Program Analyst
13	DC	Program Analyst
13	SD	Supervisory Computer Specialist
12	SD	Financial Manager
12	SD	Property Disposal Officer
11	SD	Head Supervisory Computer Specialist
11	SD	Supervisory General Equipment Specialist
10	SD	Property Disposal Specialist Supervisory
09	SD	Head Supervisory Procurement Agent

<u>GS LEVEL</u>	<u>LOCATION</u>	<u>JOB TITLE</u>
09	SD	Summer Aid (Accountant)
09	SD	Storage Management Specialist
09	SD	Supervisory Supply Technician

Qualitative descriptions of the various clusters can be obtained by considering the responses to the task inventory items averaged for each cluster. These means can be compared to the overall task item means to identify those items that discriminate the positions in an individual cluster from all positions not in that cluster. This produces two sets of items for each cluster. The first describes what activities are common among the positions in the cluster, and the second describes tasks people in these positions report as being as somewhat uncommon in their positions. These sets of items have been identified for the three clusters that mix Washington and San Diego positions. The results follow.

The positions in Cluster V are concerned with the products and services of the activity and are not concerned with merchandising, budgeting, image in the community, employee benefits, or labor relations. Sitting at a desk at least 20 hours per week is the most distinctive item. Their activities directly affect the quality of the organization's products/services, pressure is high, troubleshooting and meeting problems caused by factors beyond their control are prominent. They have opportunity to utilize their professional training, are involved in activities that are not closely supervised, and involved in dealing with other Navy commands. Their GS range is a bit narrow (essentially 9-14). They are distinct from Clusters VII and IX in that they have line rather than staff positions and do little personnel management.

Membership in Cluster VII signifies membership in top or middle management and is considered a staff rather than line position. The GS range is 11-17 (essentially). The people are involved with dealing with persons (within the activity) of substantially higher rank, expend at least 10 hours per week in direct association with supervisors, and advise junior personnel on technical matters. They receive opportunity to utilize their professional training, gain experience in management, and value getting to know each person under them. People in this cluster are not involved with engineering standards, cost controls, new products, or sales quotas. They have little first-hand contact with customers, and their activities seem to be controlled or supervised. They are not responsible for high dollar value items, an automobile is not provided for them, and their jobs do not carry an expense allowance.

Personnel in Cluster IX are involved in appraising the results of operations, making suggestions for improvement in products/services, setting goals for future performance, making assignments to subordinates, and are concerned with the efficiency of operations. They are involved in dealing with other Navy commands, utilize their professional training, trouble-shoot special problems, and must be careful to avoid the inadvertent disclosure of confidential information. They are not concerned with labor relations or community projects. The GS range is 9-15, and sitting at a desk at least 20 hours per week is not regarded as a prominent aspect of their positions.

FIGURE V-2

NSC TRANSFERABILITY

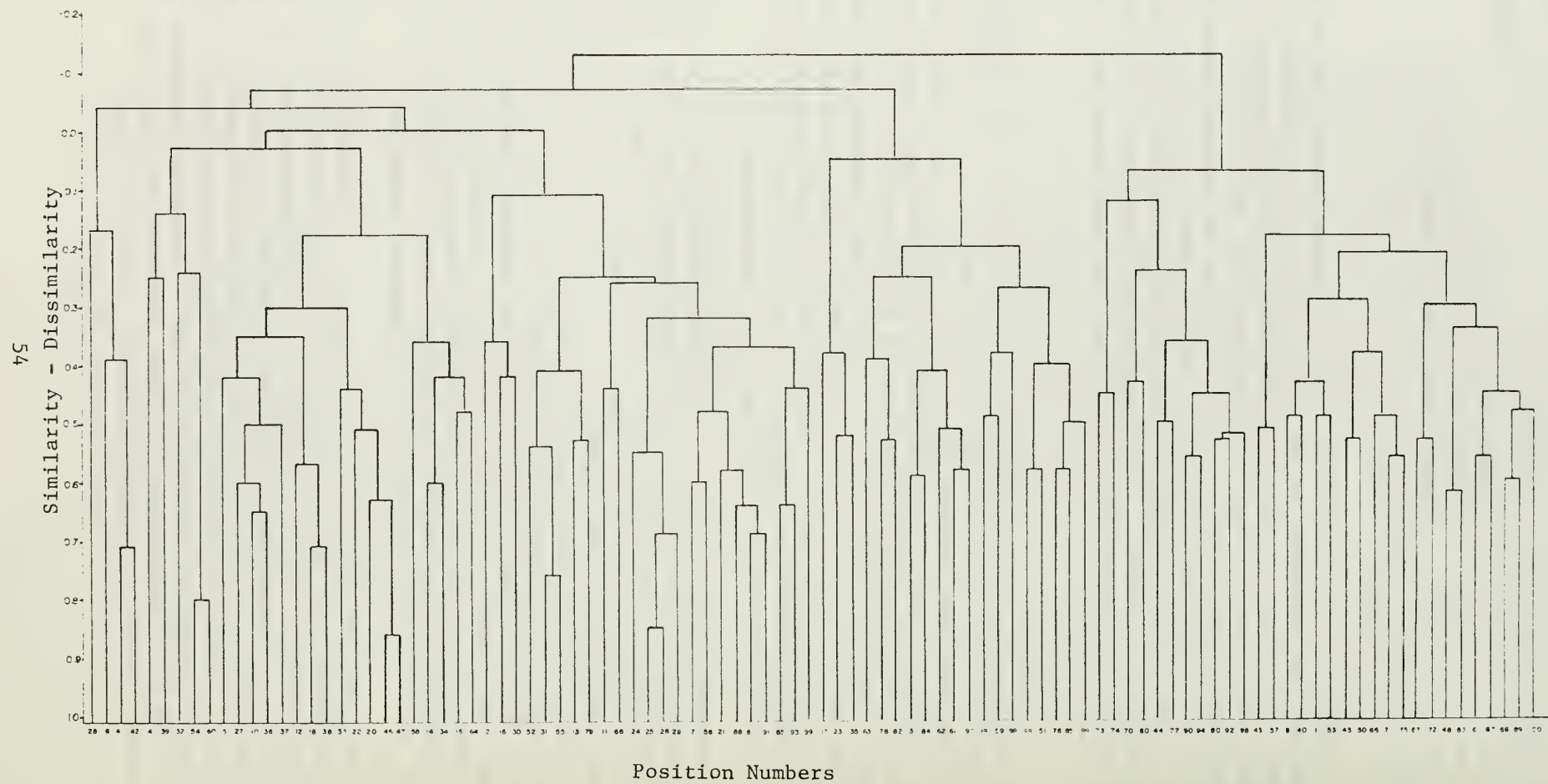
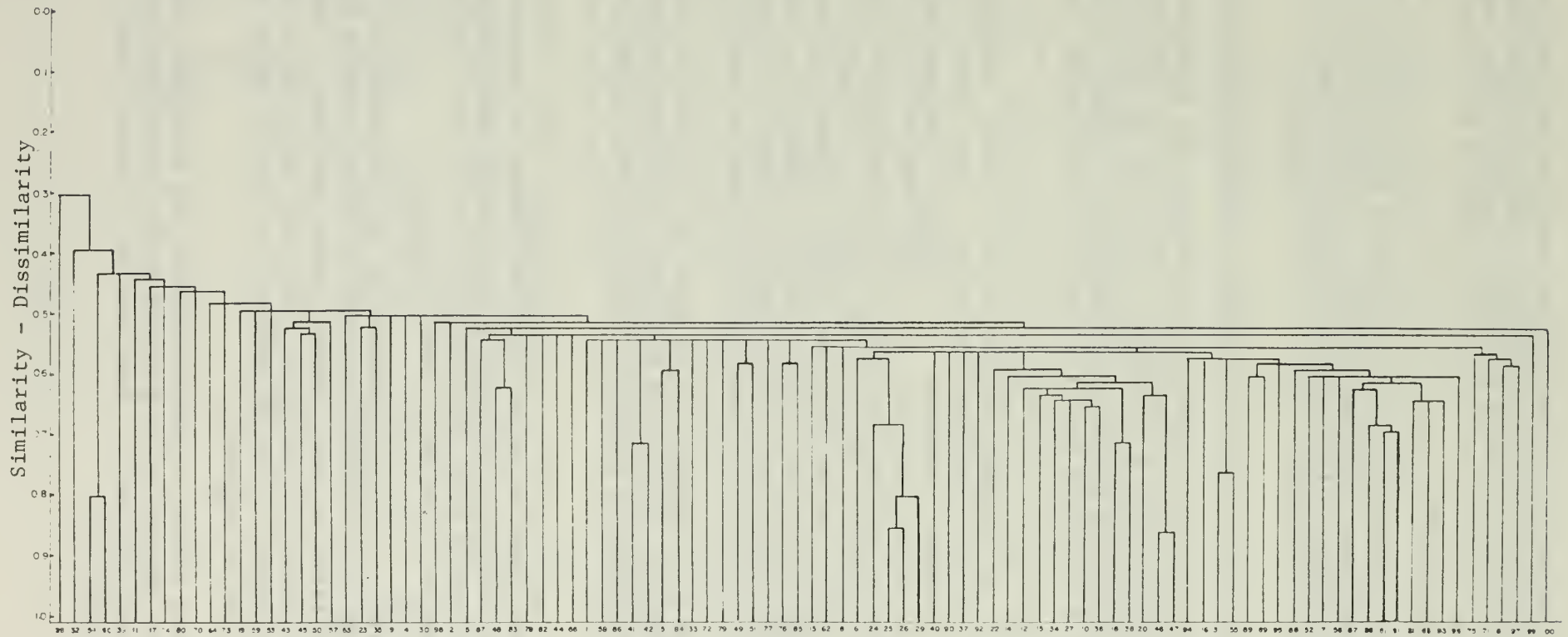


FIGURE V-3

NSC Career Ladder



Position Numbers

In general, clustering of this type is about as well as can be done using the instrument (188 item task inventory) at hand. In a specific case of, say, filling a Washington vacancy with personnel from San Diego, one could rank the individuals who are both in the cluster and close to that position by looking directly at the dendrogram.

The personnel involved in this example were all employees of Supply commands, and the instrument used was probably too general to give truly sharp separations of personnel within Supply occupations. Thus, it is possible that a more specific instrument could do a better job.

Cluster Analysis Results Emphasizing Career Paths (Supply Occupations)

Identification of career paths is similar to, but different from, the question of interchangeability of personnel. With the clusters developed in the previous section (see Table V-11), there is a range of GS levels, and the jobs associated with advancing levels are suggestive of career paths. If the results presented in Table V-11 were used to identify career paths, one would expect the following:

For Cluster V, an equipment specialist or computer specialist might aspire to become a supply management specialist. For Cluster VII we see managers and specialists becoming directors. For Cluster IX we see lower level supervisor becoming directors, deputies, and heads. Such interpretations should be taken with a grain of salt in the light of the "Washington bias" in GS levels for these three clusters. The other two clusters (III and VIII) in Table 10 do not mix Washington and San Diego personnel. Cluster III is very narrowly ranged in GS level and hence no career path is indicated. Cluster VIII however does suggest a route for certain storage, computer and supply analysts to be GS 15's in Washington in some special managerial positions.

If one thinks of a career path in terms of a series of links through which the aspirant grows and advances as he learns to do more and more important things, then the method of clustering should be more closely aligned with this concept.

The second cluster analysis method provided results facilitating the identification of career paths in accord with the concept of progressive linkages among jobs. The dendrogram portraying these career paths is shown in Figure V-3. The reader should note the distinctive one-by-one tacking-on of individual positions to existing clusters of positions.

Clusters A through G are identified on the dendrogram in Figure V-3. Cluster A contains the most similar personnel of these clusters and is essentially Cluster III identified in the previous cluster analysis. Cluster A, however, does not seem to yield a career path. The four positions in Cluster B tack on conveniently to Cluster A, but at both ends of the GS scale; no logical thread among the positions is apparent.

Cluster C does better, it shows computer and management analysts growing into supply management specialists and branch heads. Also Clusters A and B merge fairly quickly with Cluster C. Note too that Cluster E merely includes two people with the same job.

Far down the similarity scale in Figure V-3 we have the merging of Clusters E, F, and G. This lengthy path culminates with some moderately high level analyst and editing positions.

The Monterey research team feels that a dialogue among members of the research team and Washington-level position incumbents would facilitate the interpretations of the results of the cluster analysis procedure. The research team also believes that a better (more specific) task inventory could now be developed which could be used to highlight the linkages among jobs in the Supply occupations.

Finance Positions Cluster Analysis Results

The results from the two types of cluster analyses of the Finance positions will be presented on the following pages. To review briefly, cluster analysis operates on the similarities among the positions being studied. Two types of cluster analysis methods were used with the data from the positions. The first method of clustering develops clusters that are very similar to one another, while the second method develops linkage among the positions studied such that positions at different GS grade levels are linked to one another.

Clusters Emphasizing Ease of Transfer

The set of responses from 49 NRFC positions at San Diego and the set of responses from 48 NAVCOMPT positions at Washington, D.C. to the 188 item task inventory were used in both types of cluster analyses conducted with the data from the Finance occupations (A sample of the task inventory is included in Appendix 9). The intercorrelation matrix (correlation among the 97 positions; computed over the 188 task items) was used as the input to the hierarchical cluster analysis. The dendrogram developed from this analysis is presented in Figure V-4. An eleven-cluster solution was chosen because most of these clusters included a reasonable number of positions from both San Diego and Washington. The data concerning these 11 clusters are presented in Table V-12.

TABLE V-12

11 Clusters Obtained from the Finance Positions

<u>CLUSTER I</u>		<u>CLUSTER II</u>		<u>CLUSTER III</u>		<u>CLUSTER IV</u>		<u>CLUSTER V</u>	
<u>Posi-</u>	<u>Loca-</u>	<u>Posi-</u>	<u>Loca-</u>	<u>Posi-</u>	<u>Loca-</u>	<u>Posi-</u>	<u>Loca-</u>	<u>Posi-</u>	<u>Loca-</u>
<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>	<u>tion</u>
03	SD	10	SD	70	DC	34	SD	27	SD
04	SD	11	SD			69	DC	32	SD
06	SD	20	SD			72	DC		
26	SD	21	SD			92	DC		
28	SD	23	SD						
29	SD	48	SD						
31	SD	49	SD						
40	SD								
43	SD								
44	SD								

CLUSTER I (Cont.)

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

47	SD
65	DC
76	DC
81	DC
91	DC

CLUSTER VI

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

42	SD
----	----

CLUSTER VII

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

13	SD
14	SD
24	SD
39	SD
46	SD
80	DC
83	DC

CLUSTER VIII

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

01	SD
02	SD
08	SD
19	SD
33	SD
36	SD
37	SD
41	SD
75	DC
82	DC

CLUSTER IX

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

12	SD
45	SD
56	DC
62	DC
66	DC
77	DC
79	DC
93	DC

CLUSTER X

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

05	SD
07	SD
16	SD
17	SD
25	SD
30	SD
59	DC
63	DC
68	DC
74	DC
78	DC

CLUSTER XI

<u>Posi-</u> <u>tion</u>	<u>Loca-</u> <u>tion</u>
-----------------------------	-----------------------------

09	SD
15	SD
17	SD
22	SD
35	SD
38	SD
50	DC
51	DC
52	DC
53	DC
54	DC
55	DC
57	DC
58	DC
60	DC
61	DC
64	DC
67	DC
71	DC
73	DC
84	DC
85	DC
86	DC
87	DC
88	DC
89	DC
90	DC
94	DC
95	DC
96	DC
97	DC

FIGURE V-4

NRFC TRANSFERABILITY



As can be seen from examining the data in Table V-12, the clusters varied from having one to fifteen positions included in them. Clusters III (position 70), IV (positions 34, 69, 72, & 92), V (positions 27 & 32) and VI (position 42) had very few positions in them, indicating that the position or positions in any of these four clusters were quite different from the positions in other clusters. Position 42 (Supervisory Fiscal Accounting Assistant) and position 70 (Military Pay Regulations Specialist) each remained in clusters by themselves, while positions 27 (Supervisory Accountant) and 32 (Supervisory Fiscal Accounting Officer) cleaved together in the same cluster. These four positions can therefore be viewed as being quite different from the other 93 positions in the analysis when the comparisons are based on the tasks they require.

Cluster II had seven positions in it, but all of the positions were from the NRFC, San Diego, and none were from Washington, D.C. Although this cluster of positions would be useful in guiding individuals among the seven positions in Cluster II, this cluster is of little help in showing relationships among San Diego and Washington positions, other than showing that the set of positions in Cluster II do not appear to be very similar to any Washington positions.

Clusters I, VII, VIII, IX, X, and XI all included positions from both San Diego and Washington, and included enough data to justify additional analysis. The GS levels, locations, and job titles of the positions in these six clusters are presented in Table V-13.

TABLE V-13

Descriptive Data Concerning the Six
Largest Clusters of Finance Positions

<u>GS Level</u>	<u>Location</u>	<u>Job Title</u>
<u>CLUSTER I</u>		
07	SD	Office Services Supervisor
06	SD	Fiscal Accounting Supervisor
07	SD	Supervisory Computer Aide
07	SD	Supervisory Accounting Technician
08	SD	Supervisory Accounts Maintenance Clerk
07	SD	Supervisory Accounting Technician
07	SD	Supervisory Accounts Maintenance Clerk
07	SD	Voucher Examiner Supervisor
05	SD	Card Punch Supervisor
04	SD	Card Punch Supervisor
09	SD	Disbursing Specialist
11	DC	Fiscal Accountant Assistant
11	DC	Computer Operations Supervisor
13	DC	Computer Specialist
11	DC	Supervisory Accounting Assistant

CLUSTER VII

07	SD	Computer Programmer
09	SD	Computer Programmer
09	SD	Disbursing Specialist
11	SD	Computer Specialist
09	SD	Computer Specialist
11	DC	Computer Specialist
11	DC	Computer Specialist

<u>GS Level</u>	<u>Location</u>	<u>Job Title</u>
-----------------	-----------------	------------------

CLUSTER VIII

05	SD	Voucher Examiner, Supervisory Typing
07	SD	Voucher Examiner Supervisor
05	SD	Supervisory Mail/File Clerk
09	SD	Supervisory Accounts Maintenance Clerk
06	SD	Military Pay Supervisor
07	SD	Supervisory Military Pay Clerk
10	SD	Military Pay Supervisor
06	SD	Voucher Examiner Supervisor
12	DC	Computer Specialist
13	DC	Computer Specialist

CLUSTER IX

11	SD	Computer Specialist
11	SD	Computer Specialist
15	DC	Branch Head, Nonapp. Funds & Spec. Systems
13	DC	Program Analyst
12	DC	Fiscal Accountant
14	DC	Director, ADP Operations Division
?	DC	Digital Computer Systems Admin
?	DC	?
14	DC	Program Analyst

CLUSTER X

11	SD	Computer Specialist
09	SD	Computer Specialist
11	SD	Management Analyst
11	SD	Computer Specialist
08	SD	Accounting Technician
11	SD	Management Analyst
12	DC	Systems Accountant
12	DC	Systems Accountant
?	DC	?
13	DC	Computer Specialist
12	DC	Computer Specialist

CLUSTER XI

09	SD	Voucher Examiner Supervisor
12	SD	Supervisory Disbursing Specialist
11	SD	Computer Specialist
13	SD	Digital Computer Systems Administrator
10	SD	Military Pay Supervisor
12	SD	Supervisory Fiscal Accounting Officer
14	DC	Program Manager
12	DC	Management Analyst
12	DC	Program Analyst
13	DC	Management Analyst

<u>GS Level</u>	<u>Location</u>	<u>Job Title</u>
14	DC	Budget Officer
13	DC	Program Manager
14	DC	Systems Accountant
13	DC	Systems Accountant
15	DC	Director, Functional Systems Division
14	DC	Supervisory Systems Accountant
13	DC	Systems Accountant
11	DC	Military Pay Regulations Specialist
11	DC	Military Pay Regulations Specialist
12	DC	Military Pay Regulations Specialist
15	DC	Deputy Director, Financial Analysis Div.
14	DC	Systems Accountant
14	DC	Program Analyst
11	DC	Operations Research Analyst
14	DC	Program Analyst
14	DC	Program Analyst
12	DC	Acting Head Secretariat Accounts Branch
15	DC	Director Program/Budget Systems Ops.
14	DC	Data Control Branch Head
11	DC	Program Analyst
13	DC	Program Analyst

A given cluster of positions presented in Table V-13 can be described by examining the responses to the task inventory made by the incumbents to those positions. In particular, the mean response to each of the 188 task items can be computed for the positions in a cluster. These cluster means can then be compared with the mean responses for all of the positions not in the cluster in order to identify task items differentiating the positions in a cluster from all of the positions not in the cluster. Two sets of task items are generated in this way for each cluster: one set of items describing those tasks relatively important in positions in that cluster; another set of items describing the tasks incumbents in these positions tend not to do -- at least when compared with positions not in the cluster. The following descriptions of the clusters were developed by examining these sets of items for each of the six large clusters of Finance positions.

The positions in Cluster I (see Table V-13) are distinguished from all other positions by tasks that are less important than they are to positions not in the cluster. Position incumbents in Cluster I had significantly lower average responses on items such as*

- Item 139: Spend as much as 50 hours per week on the job.
- Item 187: Involves dealing with other than DOD representatives of the executive branch of government
- Item 146: Work with information of questionable reliability.
- Item 116: Concern with pilot projects.

*The entire task inventory is in Appendix 1.

- Item 40: Supervise a team of specialists.
- Item 61: Preparation of an annual budget of at least \$200,000.
- Item 42: Analyze operating performance reports.
- Item 120: Redesign of products to reduce costs.

On none of the 188 task items did the cluster's mean response exceed that of the positions not in the cluster, indicating that none of the tasks was more a part of positions in the clusters than it was a part of positions not in the cluster.

On a number of task items, the mean item response for Cluster VII was significantly lower than that of the positions not in the cluster, while in no case did the cluster's mean response exceed that of the positions not in the cluster. The incumbents in Cluster VII had significantly lower average responses on the following task items:

- Item 181: Provides an office that is located in one of the more desirable areas.
- Item 53: Serve as a consultant in work with branches of the organization.
- Item 23: Be involved in establishing objectives for the organization.
- Item 126: Preparation of quarterly (or more frequent) reports on operations.
- Item 2: Forecast the volume of work to be done in the near future.
- Item 60: Concern with long-range objectives of the organization.
- Item 49: Evaluate records of production.
- Item 7: Submit regular reports concerning accomplishment of groups of personnel.
- Item 71: Forecasting future trends or events.
- Item 42: Analyze operating performance reports.
- Item 20: Make analyses of statistical reports.
- Item 1: Plan the analysis of quantitative data.
- Item 156: Signifies membership in top or middle management.
- Item 47: Make use of staff people.
- Item 102: Long-range trends in management thinking.
- Item 113: The long-range potentialities of the organization.
- Item 11: Edit drafts of special reports.
- Item 6: Make assignments of jobs to subordinates.
- Item 48: Consolidate estimates from various sources.
- Item 41: Represent the CO outside the organization.
- Item 4: Schedule work so that it flows evenly and steadily.
- Item 165: Involves maintaining the highest respect of a few important persons.
- Item 54: Brief others on the contents of reports, letters, etc.
- Item 187: Involves dealing with other than DOD representatives of the executive branch of government.
- Item 36: Assist project representatives on large projects.

In contrast to Clusters I and VII, Cluster VIII did have several task item means exceeding the corresponding means of the positions not in the cluster. These task items were:

- Item 17: Keep detailed and accurate records.
- Item 19: Advise junior persons on technical matters related to the operation.
- Item 4: Schedule work so that it flows evenly and steadily.

Cluster VIII had significantly lower mean responses on the following items:

- Item 41: Represent the CO outside the organization.
- Item 120: Redesign of products to reduce costs.
- Item 93: Product specifications.
- Item 38: Review budgets for operations.
- Item 76: Improvements in product design.
- Item 46: Explain divergence between budget and actual expenditure.

On five of the task items, the positions in Cluster IX had mean responses significantly exceeding those of the positions not in the cluster (indicating tasks more important in these positions than they were in other positions). These items were:

- Item 116: Concern with pilot projects.
- Item 54: Brief others on the contents of reports, letters, etc.
- Item 71: Forecasting future trends or events.
- Item 36: Assist project representatives on large projects.
- Item 60: Long-range objectives of the organization.

The mean task item response data for Clusters X and XI indicate that these clusters had almost no mean responses that were significantly different from the mean responses from the positions not in these clusters. Although Clusters X and XI are holistically different from one another, and from the positions in other clusters, both Clusters X and XI can apparently be thought of as representing the centrality of the tasks performed in Finance positions.

Cluster X positions were significantly lower than other positions on two task items:

- Item 83: Proper handling of other than personal monies.
- Item 67: Selection of new personnel.

Cluster XI positions had a mean response lower than that of other positions on only one task item, number 22: "Have a public speaking engagement at least as often as once every six months".

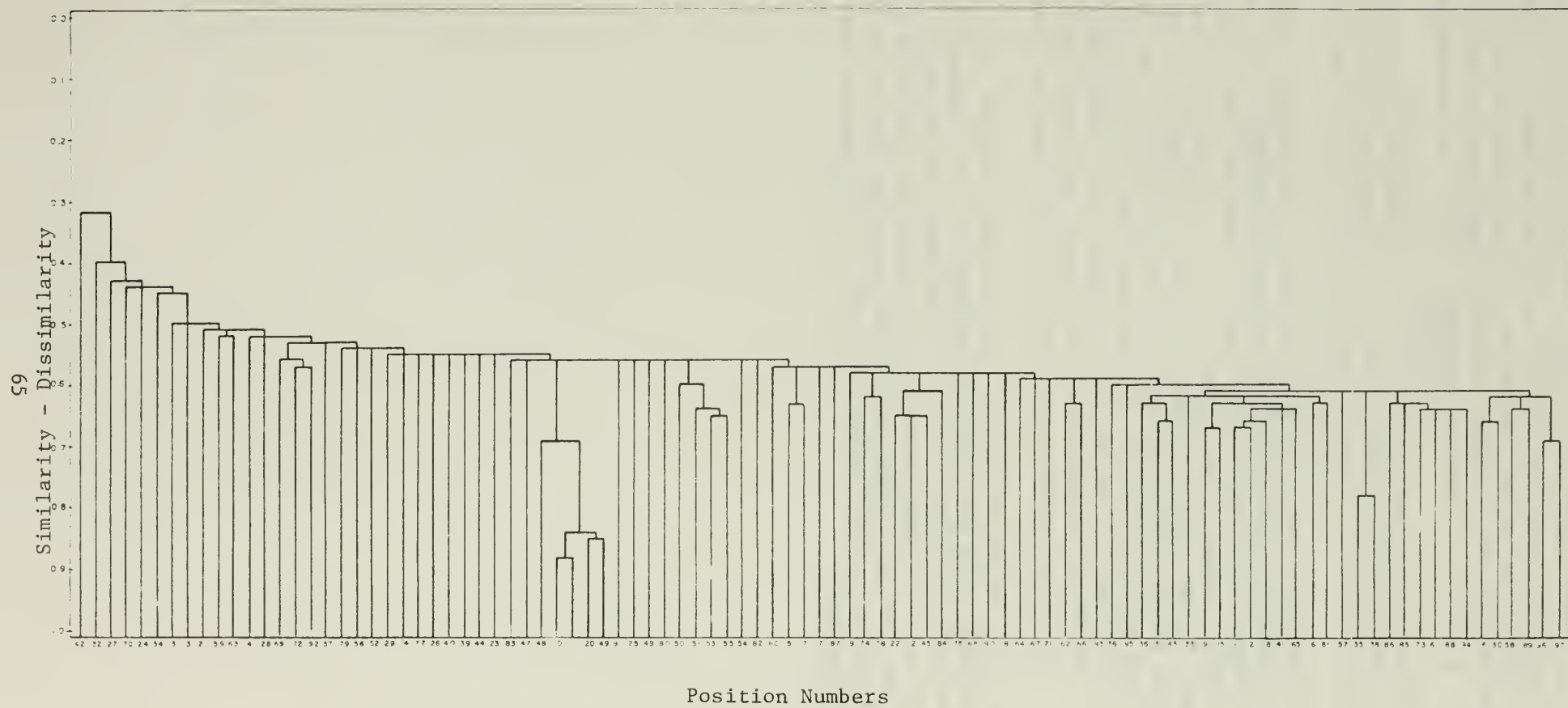
Cluster Analysis Results Emphasizing Career Paths

The clusters described in the preceding section were formed in a way maximizing interchangeability among positions within the same cluster. The results to be described now, however, result from a cluster analysis method which focuses on progressive linkages among positions. These linkages among positions are analogous to a career path which consists of a series of epochs through which an individual develops and advances to greater responsibilities. The dendrogram portraying the results of this cluster analysis method is shown in Figure V-5.

Positions 16 and 30, both of which were GS-11 Management Analyst billets at NRFC San Diego, link with positions 58 (GS-13 Systems Accountant) and with three Program Analyst billets at Washington (position numbers 89, 96, and 97). The Program Analyst positions being at the GS-11, 13, and 14 levels.

FIGURE V-5

NRFC CAREER LADDERS



Position 6, a GS-7 Supervisory Computer Aide in San Diego, links to position 81, a GS-13 Computer Specialist, rather early in the results shown in Figure V-5. At about the same point in the cluster analysis, positions 41 and 65 show a linkage. Position 41 is a GS-6 Voucher Examiner Supervisor at NRFC San Diego, and position 65 is a Fiscal Accountant Assistant, GS-11, in Washington.

Three NRFC San Diego positions: numbers 22 (Digital Computer Systems Administrator), 12 (Computer Specialist), and 45 (Computer Specialist) linked position 84, GS-15 Deputy Director, Financial Analysis Division, in Washington.

Beyond the linkages described in the several preceeding paragraphs; i.e., as you go further from the axis on which the position numbers are placed on the dendrogram in Figure V-5, the clusters rapidly come to have large numbers of positions in them. Rather large clusters form first and then merge into very large clusters. If the reader looks at the axis in Figure V-5 which has the position numbers on it; starts at the position numbered 97 and then moves up that axis, it can be seen that all of the positions along the axis from position 97 through 36 tend to link with one another into a clustering containing 28 positions. The other large clusters of linked jobs were formed later in the analysis -- after the cluster enveloping 28 positions was formed.

To sum up, this method of cluster analysis has provided some leads as to career paths leading from San Diego to Washington. The research group feels the cluster analysis methodology used in this study is one which should be considered for use if further career path studies are conducted by NAVCOMPT, but that the task inventory used to provide the grist for the analysis mill should be tailored so as to illuminate better the differences among professional jobs in NAVCOMPT.

APPENDIX 1

TASK INVENTORY

POSITION DESCRIPTION QUESTIONNAIRE
IND-NSC 12280/29 (3-73) 200

Name: _____

Position: _____

Code: _____

A. Purpose.

The purpose of this questionnaire is to determine the basic characteristics of middle and senior level civil service positions in several occupational areas of the Naval Material Command. This basic information will later be used to develop "career ladders" for the jobs involved.

B. Use of the questionnaire.

The questionnaire is to be completed by the incumbents of civil service professional series positions at field activities and at Washington, D.C. A similar questionnaire has already been proven useful in describing such jobs in civilian industrial organizations.

C. Position identification.

1. Official title and civil service grade
of the person to whom you report _____
2. Number of people you supervise:
Directly _____ (please specify the number)
Indirectly* _____ (please specify the number)
*Subordinates in your chain of command who are under those
you directly supervise.
3. How long have you occupied this position? _____ years and _____ months

D. Completion of the questionnaire.

Your cooperation in completing and returning this survey is an essential part of an official study sponsored by the Naval Material Command. You are asked to complete this questionnaire so as to give the best description you can of your position. There are 188 items for you to consider, but you should be able to complete the questionnaire within an hour. Do not be disturbed if you find that many of the items do not apply to your position. This questionnaire is used to describe jobs from GS-5 to GS-16 in the professional series, and so must include items that apply to any of the jobs being surveyed.

Upon completion of the questionnaire, return it by guard mail to:
Postgraduate School Project, Code 20A.

All questionnaires should be returned by _____.

The items are organized into five sections: Section I concerns position activities, Section II concerns general responsibilities, Section III covers position demands and restrictions, Section IV contains items about miscellaneous position characteristics, and Section V asks you to supply other information you feel is relevant.

As you consider each item you are to proceed in two steps: First, consider whether the item applies to or is true for your position. If your answer is No then the item is definitely not part of your position. Second, and only if the item does apply or is true for your position, you must then decide how significant a part of your position it represents. In making this decision you are to consider and weigh its importance, frequency of occurrence, relevance, or any other factor which you think determines to what extent the item is part of the position. You are to allot a value between 0 and 7 to each item according to the following schema.

0. Definitely not a part of the position, does not apply, or is not true.
1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
4. A substantial part of the position.
- 5.
- 6.
7. A most significant part of the position.

Please do not omit items.

PART I POSITION ACTIVITIES

Consider each of the following statements which may describe something that would be done by an individual in your position. If the statement describes something that does not apply to, or is not true for your position because it describes something that is delegated by you to a subordinate, it is not a part of your position. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

- 0. Definitely not a part of the position, does not apply, or is not true.
- 1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
- 4. A substantial part of the position.
- 5.
- 6.
- 7. A most significant part of the position.

AN INDIVIDUAL IN THIS POSITION WOULD:

- _____ 1. Plan the analysis of quantitative data.
- _____ 2. Forecast the volume of work to be done in the near future.
- _____ 3. Maintain personal contact with heads of union groups.
- _____ 4. Schedule work so that it flows evenly and steadily.
- _____ 5. Nominate key personnel in the organization for promotion.
- _____ 6. Make assignments of jobs to subordinates.
- _____ 7. Submit regular reports concerning accomplishment of groups of personnel.
- _____ 8. Visit each of the organization's major units at least once a year.
- _____ 9. Write or dictate at least 25 letters per week.
- _____ 10. Verify important facts before they become part of a record.
- _____ 11. Edit drafts of special reports.
- _____ 12. Make speeches at public gatherings.
- _____ 13. Sign documents that obligate the organization to the extent of at least \$1,000.

DIRECTIONS SUMMARIZED

0. Definitely not a part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.

2.

3.

4. A substantial part of the position.

5.

6.

7. A most significant part of the position.

14. Travel at least 30 days each year as a representative of the organization.

15. On the average spend at least one hour per day completing routine paper work.

16. Approve transfers of personnel from one job to another.

17. Keep detailed and accurate records.

18. Make recommendations on matters at least as important as the construction of a new plant, or warehouse.

19. Advise junior persons on technical matters related to the operation.

20. Make analyses of statistical reports.

21. Approve the introduction of new products or services.

22. Have a public speaking engagement at least as often as once every six months.

23. Be involved in establishing objectives for the organization.

24. Approve labor contracts.

25. Justify capital expenditures.

26. Make suggestions for improvements in organization products and/or services.

27. Appraise the results of operations.

28. Anticipate new and/or changed demands for products and/or services.

29. Serve on a committee concerned with appraisal of performance.

30. Compute the costs of producing products and/or rendering services.

31. Set profit (efficiency) objectives for operating groups.

- _____ 32. Bargain with union representatives.
- _____ 33. Review reports on inventory.
- _____ 34. Analyze expense items involving a gross of at least \$5,000.
- _____ 35. Furnish guidance to others in the preparation of budgets.
- _____ 36. Assist project representatives on large projects.
- _____ 37. Analyze regularly the effectiveness of operations.
- _____ 38. Review budgets for operations.
- _____ 39. Establish effective expense controls.
- _____ 40. Supervise a team of specialists.
- _____ 41. Represent the CO outside the organization.
- _____ 42. Analyze operating performance reports.
- _____ 43. Devise procedures to properly reflect the results of operation.
- _____ 44. Trouble-shoot special problems as they arise.
- _____ 45. Plan the best use of available facilities.
- _____ 46. Explain divergence between budget and actual expenditures.
- _____ 47. Make use of staff people.
- _____ 48. Consolidate estimates from various sources.
- _____ 49. Evaluate records of production.
- _____ 50. Secure facts and information for others.
- _____ 51. Serve as a member of one or more committees concerned with organization policy.
- _____ 52. Set goals for future performance.
- _____ 53. Serve as a consultant in work with branches of the organization.
- _____ 54. Brief others on the contents of reports, letters, etc.
- _____ 55. Appraise the results of operations.

- _____ 56. Define areas of responsibility for supervisory personnel.
- _____ 57. Make recommendations for salary increases.
- _____ 58. Serve as a consultant in the interpretation of data and/or other information.
- _____ 59. Keep a constant check upon the activities of subordinates.

PART II POSITION RESPONSIBILITIES

Consider each of the following statements which may describe something with which an individual in your position must be concerned. If your position requires that you be attentive to, worry about, be responsible for, or oversee the matter described in the statement, you are to consider it a part of your position, regardless of how much time you devote to it personally. However, if the statement describes something which is strictly the concern of a superior or of a subordinate you should not consider it a part of your position. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

- 0. Definitely not a part of the position, does not apply, or is not true.
- 1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
- 4. A substantial part of the position.
- 5.
- 6.
- 7. A most significant part of the position.

AN INDIVIDUAL IN MY POSITION MUST BE CONCERNED WITH:

- _____ 60. Long-range objectives of the organization.
- _____ 61. Preparation of an annual budget of at least \$200,000.
- _____ 62. Optimum return on investments of the organization.
- _____ 63. Preservation of capital assets.
- _____ 64. Capital expenditures.
- _____ 65. Payment of salary and/or wages.
- _____ 66. Expenditure of sums exceeding \$10,000 in routine operations.
- _____ 67. Selection of new personnel.
- _____ 68. Labor contracts.
- _____ 69. Definition of areas of responsibility of supervisory personnel.
- _____ 70. Payment of organizational obligations.
- _____ 71. Forecasting future trends or events.

72. Preparation and circulation of bulletins and reports.
73. Development of new business.
74. Enforcement of rules and regulations.
75. Control of inventories.
76. Improvements in product design.
77. Protection of organization property.
78. Employee benefit plans.
79. Preparation of standards and/or specifications.
80. Reduction of costs.
81. Pricing organization products and/or services.
82. Promotion of the organization products or services.
83. Proper handling of other than personal monies.
84. Compliance of practices with state and federal laws.
85. Relationships with unions.
86. Insurance programs and/or policies.
87. Delivery schedules.
88. Coordination of certain activities of many subdivisions of the organization.
89. Loss of the organization's money and/or property.
90. Acceptance of the organization in the community.
91. Price trends.
92. Promises of delivery that are difficult to meet.
93. Product specifications.
94. Sales quotas.
95. Merchandising policies.

DIRECTIONS SUMMARIZED

0. Definitely not part of the position, does not apply, or is not true.
1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
4. A substantial part of the position.
- 5.
- 6.
7. A most significant part of the position.

_____ 96. Market trends five to ten years in the future (demands for the future from the Navy and others).

_____ 97. Long-range solvency of the organization.

_____ 98. Employee attitude surveys.

_____ 99. Employee vacation and benefit plans.

_____ 100. Interpretation of details of a collective bargaining agreement.

_____ 101. What business activities the organization is to be engaged in.

_____ 102. Long-range trends in management thinking.

_____ 103. Control of product quality.

_____ 104. Industrial relations.

_____ 105. Opportunities to promote the organization before the public.

_____ 106. New competitive products.

_____ 107. Union activities within the organization.

_____ 108. Over-or-under staffing of jobs.

_____ 109. Maintenance of proper inventories.

_____ 110. New markets for the organization's products (goods or services).

_____ 111. Engineering standards.

_____ 112. Details of a collective bargaining agreement.

_____ 113. The long-range potentialities of the organization.

- _____ 114. The effectiveness of a force of 100 or more personnel.
- _____ 115. Proposed legislation that might affect the organization.
- _____ 116. Pilot projects.
- _____ 117. Sizing up people.
- _____ 118. Evaluating new ideas.
- _____ 119. Responsibility for items having a value of at least \$100,000.
- _____ 120. Redesign of products to reduce costs.
- _____ 121. Quality control.
- _____ 122. Good will of the organization in the community.
- _____ 123. New markets for future products (goods or services).
- _____ 124. Market conditions affecting the users of the organization's products and/or services.
- _____ 125. Efficiency of operations.
- _____ 126. Preparation of quarterly (or more frequent) reports on operations.
- _____ 127. Development of management trainees.
- _____ 128. Human relations practices.
- _____ 129. Consolidation of data and/or information from numerous sources.

PART III POSITION DEMANDS AND RESTRICTIONS

Consider each of the following statements which may describe a restriction, limitation, control or demand upon an individual in your position. Consider that the statement describes a part of your position if it is true when applied to your position and it is likely that failure to observe the matter described would cause others to think you inadequate or unqualified for your position. Do not consider that a statement describes part of your position if it is not true or does not apply or because it agrees with your personal view about what is proper. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

- 0. Definitely not part of the position, does not apply, or is not true.
- 1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
- 4. A substantial part of the position.
- 5.
- 6.
- 7. A most significant part of the position.

MY POSITION REQUIRES THAT I:

- _____ 130. Refrain from activities that might imply sympathy for unions.
- _____ 131. Be active in community affairs.
- _____ 132. Avoid identification with political elements that others consider radical.
- _____ 133. Even during most relaxed social occasions avoid deviations from generally accepted behavior.
- _____ 134. Maintain membership in one or more clubs.
- _____ 135. Keep informed about the latest technical developments in a professional area.
- _____ 136. Avoid any public comment critical of good customer/supplier/contractor.
- _____ 137. Avoid the use of any kind of profanity.
- _____ 138. Be very careful to avoid inadvertent disclosure of confidential information.
- _____ 139. Spend as much as 50 hours per week on the job.
- _____ 140. Take a leading part in local community projects.

- _____ 141. Work with persons whose interests conflict with the demands of my position.
- _____ 142. Sit at a desk at least 20 hours per week.
- _____ 143. Be capable of performing the jobs of all subordinates.
- _____ 144. Participate in outside activities to increase the prestige of the organization.
- _____ 145. Gain the respect of very important persons.
- _____ 146. Work with information of questionable reliability.
- _____ 147. Maintain membership in two or more business organizations.
- _____ 148. Present the organization to the public in its best light.
- _____ 149. Avoid publicity associated with personal difficulties.
- _____ 150. Refrain from being seen at a place (bar, club, etc.) having other than the highest
repute.
- _____ 151. Maintain active membership in two or more professional organizations.
- _____ 152. Get to know each person under me.
- _____ 153. Be an active member of at least one civic organization.
- _____ 154. Refrain from public criticism of the organization's operations.
- _____ 155. Make decisions without consulting others.

PART IV POSITION CHARACTERISTICS (Miscellaneous)

Consider each of the following statements which may be either true or false if applied to your position. If the statement is true only because of your particular relationship to your position and would not be true of another incumbent, do not consider it a part of the position. However, if the statement would be true regardless of who holds the position, then the statement describes a part of the position. In this case your task is to decide how substantial a part of the job it is. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

- 0. Definitely not part of the position, does not apply, or is not true.
- 1. Under unusual circumstances may be a minor part of the position.
- 2.
- 3.
- 4. A substantial part of the position.
- 5.
- 6.
- 7. A most significant part of the position.

MY POSITION:

- _____ 156. Signifies membership in top or middle management.
- _____ 157. Offers an opportunity to utilize professional training.
- _____ 158. Involves dealing with persons within the organization of substantially higher rank.
- _____ 159. Involves first-hand contact with customers of the organization.
- _____ 160. Assures that the incumbent will be noticed by top management.
- _____ 161. Is within the normal path of promotion to higher levels.
- _____ 162. Offers an opportunity to work with the more influential people within the surrounding civilian community.
- _____ 163. Allows great freedom of action.
- _____ 164. Involves very frequent contact with the public.
- _____ 165. Involves maintaining the highest respect of a few important persons.
- _____ 166. Involves first-hand contact with machines and their operations.
- _____ 167. Offers an opportunity to gain experience in management.

- _____ 168. Involves the "good will" of the organization.
- _____ 169. Involves meeting problems produced by factors over which I have no control.
- _____ 170. Allows me to make decisions that are not subject to review.
- _____ 171. Provides an opportunity for actually managing an important part of the organization.
- _____ 172. Provides an organization's automobile for my use.
- _____ 173. Entitles me to my own secretary.
- _____ 174. Involves close association with women personnel.
- _____ 175. Involves many regularly assigned duties.
- _____ 176. Carries a personal expense allowance.
- _____ 177. Directly affects the quality of the organization's products or services.
- _____ 178. Involves spending at least 10 hours per week in direct association with superiors.
- _____ 179. Involves very few routine activities.
- _____ 180. Involves activities that are not closely supervised or controlled.
- _____ 181. Provides an office that is located in one of the more desirable areas.
- _____ 182. Is considered a staff rather than line position.
- _____ 183. Involves working under constant pressure to meet deadlines.
- _____ 184. Involves working with members of other armed services or the DOD.
- _____ 185. Involves dealing with other Navy commands.
- _____ 186. Involves dealing with representatives of the Legislative branch of the government.
- _____ 187. Involves dealing with other than DOD representatives of the Executive branch of the government.
- _____ 188. Involves dealing with representatives of the Judicial branch of the government.

PART V REQUEST FOR ADDITIONAL RELEVANT DATA

If you feel there are other position activities, responsibilities, demands and restrictions, or characteristics that should be included in this questionnaire in order to allow you to better describe your position, please write them below and/or on the back of this page. We will incorporate them into a supplemental questionnaire form and get that back to you in the near future.

One last request, please scan back over your work to make sure you entered a number in every one of the spaces provided for that purpose.

Thank you!

APPENDIX 2

JOB TITLE-POSITION LISTINGS
FOR SUPPLY & FINANCE POSITIONS
IN SAN DIEGO & WASHINGTON, D.C.

APPENDIX 2

SUPPLY POSITIONS: SAN DIEGO

<u>Position Identification Number</u>	<u>Position Title</u>
001	Supervisory Supply Technician
002	Computer Programmer
003	Inventory Management Specialist
004	Budget Analyst
005	Computer Specialist
006	Budget Analyst
007	Management Analyst
008	Supervisory General Supply Specialist
009	Marine Cargo Specialist
010	Supervisory Computer Specialist
011	Management Analyst
012	Supply Systems Analyst
013	Summer Aid (Accountant)
014	Contract Administrator
015	Procurement Assistant
016	Inventory Management Specialist
017	Inventory Management Specialist
018	Inventory Management Specialist
019	Computer Specialist
020	Supervisory Equipment Specialist, General
021	Equipment Specialist, General
022	Computer Specialist
023	Equipment Specialist, General
024	Supervisory Property Disposal Specialist
025	Inventory Management Specialist
026	Personnel Officer
027	Inventory Management Specialist
028	Accounting Officer
029	Computer Systems Analyst
030	Property Disposal Assistant
031	Equipment Specialist, Marine
032	Equipment Specialist, General
033	Equipment Specialist, Ordnance
034	Equipment Specialist, Machine
035	Equipment Specialist, Electrical
036	Equipment Specialist, Marine
037	Property Disposal Assistant
038	Head Supervisory Equipment Specialist, General
039	Management Analyst
040	Computer Specialist
041	Equipment Specialist, General
042	Director, Position Classification Specialist
043	Director, Supervisory Chemist Analyst
044	Inventory Management Specialist

SUPPLY POSITIONS: SAN DIEGO (Cont.)

<u>Position Identification Number</u>	<u>Position Title</u>
045	General Supply Officer
046	Head Supervisory Contract Administrator
047	Equipment Specialist, General
048	Equipment Specialist, General
049	Equipment Specialist, Ordnance
050	Equipment Specialist, General
051	Equipment Specialist, Mechanical
052	Procurement Assistant
053	Procurement Assistant
054	Procurement Assistant
055	Equipment Specialist, Auto
056	Budget Analyst
057	Budget Analyst
058	Supervisory Inventory Management Specialist
059	Storage Management Specialist
060	Property Disposal Assistant
061	Property Disposal Assistant
062	Property Disposal Assistant
063	Property Disposal Assistant
064	Supervisory Property Disposal Specialist
065	Program Analyst
066	Property Disposal Officer
067	Inventory Management Specialist
068	Inventory Management Specialist
069	Financial Manager
070	Personnel Staffing Specialist
071	Supervisory Equipment Specialist, General
072	Supervisory Personnel Staffing Specialist
073	Supply Systems Analyst
074	Director, Employee Development Specialist
075	Computer Systems Analyst
076	Computer Specialist
077	Personnel Staffing Specialist
078	Head Supervisory Computer Specialist
079	Supply Management Assistant
080	Computer Specialist
081	Computer Specialist
082	Property Disposal Assistant
083	Computer Specialist
084	Head Supervisory Procurement Agent
085	Equipment Specialist, Electrical
086	Equipment Specialist, General
087	Supervisory Labor Management Relations Specialist
088	Procurement Assistant
089	Supply Management Assistant

SUPPLY POSITIONS: NAVSUP

<u>Position Identification Number</u>	<u>Position Title</u>
150	Technical Advisor to the Commander
151	Educational Specialist
152	Resale Program Specialist
153	Editor
154	Supply Management Specialist
155	Department Director
156	Supply Management Director
157	Program Manager
158	Branch Head
159	Activity Representative
160	Assistant Deputy Commander, Procurement Management Branch
161	Director, Procurement Policy & Planning Division
162	Procurement Analyst
163	Program Analyst Officer
164	Program Analyst
165	Deputy Commander, Administration Management Analyst Officer
166	Management Analyst
167	Transportation Officer
168	Head, Storage & Packaging Branch
169	Supply Systems Analyst
170	Storage Management Specialist
171	Traffic Management Specialist
172	Transportation Analyst
173	Provisioning Branch Head
174	General Supply Officer
175	Head, Budget Form. Branch
176	Head, Mutual Security Program Branch
177	Fiscal Accounting Assistant
178	Planning & Policy Branch, Acting Director
179	Asst. Dir., Program Appraisal & Mgmt. Info. Systems Division
180	Head, Systems Design & Analysis
181	Computer Systems Analyst
182	Program Analyst
183	Planning Officer
184	Logistics Planning Analyst
185	Navy Publications & Printing Services, Deputy Director
186	Printing Officer
187	Systems Analyst
188	Supply Management Specialist
189	Supply Management Analyst
190	Supply Management Specialist
191	Assistant Head, Stock Point Systems Branch
192	Supply Management Specialist
193	Computer Equipment Analyst
194	Supply Management Specialist
204	Material Technical Programs Division, Director
205	Director, Program Analysis
206	Program Analyst

FINANCE POSITIONS: SAN DIEGO

<u>No.</u>	<u>ID#</u>	<u>Job Title</u>
01	090	Voucher Examiner, Supervisory Typing
02	091	Voucher Examiner Supervisor
03	092	Office Services Supervisor
04	093	Fiscal Accounting Supervisor
05	094	Computer Specialist
06	095	Supervisory Computer Aid
07	096	Computer Specialist
08	097	Supervisory Mail/File Clerk
09	098	Voucher Examiner Supervisor
10	099	Disbursing Specialist
11	100	Disbursing Specialist
12	101	Computer Specialist
13	102	Computer Programmer
14	103	Computer Programmer
15	104	Supervisory Disbursing Specialist
16	105	Management Analyst
17	106	Computer Specialist
18	107	Voucher Examiner Supervisor
19	108	Supervisory Accounts Maintenance Clerk
20	109	Disbursing Specialist
21	110	Disbursing Specialist
22	111	Digital Computer Systems Administrator
23	112	Disbursing Specialist
24	113	Disbursing Specialist
25	114	Accounting Technician
26	115	Supervisory Accounting Technician
27	116	Supervisory Accountant
28	117	Supervisory Accounts Maintenance Clerk
29	118	Supervisory Accounting Technician
30	119	Management Analyst
31	120	Supervisory Accounts Maintenance Clerk
32	121	Supervisory Fiscal Accounting Officer
33	122	Military Pay Supervisor
34	123	Fiscal Accounting Assistant
35	124	Military Pay Supervisor
36	125	Supervisory Military Pay Clerk
37	126	Military Pay Supervisor
38	127	Supervisory Fiscal Accounting Officer
39	128	Computer Specialist
40	129	Voucher Examiner Supervisor
41	130	Voucher Examiner Supervisor
42	131	Supervisory Fiscal Accounting Assistant
43	132	Card Punch Supervisor
44	133	Card Punch Supervisor
45	134	Computer Specialist
46	135	Computer Specialist
47	136	Disbursing Specialist
48	137	Disbursing Specialist
49	138	Disbursing Specialist

FINANCE POSITIONS: NAVCOMPT

<u>No.</u>	<u>ID#</u>	<u>Job Title</u>
50	501	Program Manager
51	502	Management Analyst
52	503	Program Analyst
53	504	Management Analyst
54	505	Budget Officer
55	506	Program Manager
56	507	Branch Head, Nonappropriated Funds & Special Systems
57	508	Systems Accountant
58	509	Systems Accountant
59	510	Systems Accountant
60	511	Director, Functional Systems Division
61	512	Supervisory Systems Accountant
62	513	Program Analyst
63	514	Systems Accountant
64	515	Systems Accountant
65	516	Fiscal Accountant Assistant
66	517	Fiscal Accountant
67	518	Military Pay Regulations Specialist
68	519	??
69	520	Military Pay Regulations Specialist
70	521	Military Pay Regulations Specialist
71	522	Military Pay Regulations Specialist
72	523	Military Pay Regulations Specialist
73	524	Military Pay Regulations Specialist
74	525	Computer Specialist
75	526	Computer Specialist
76	527	Computer Operations Supervisor
77	528	Director, ADP Operations Division Digital Computer Systems Administrator
78	529	Computer Specialist
79	530	??
80	531	Computer Specialist
81	532	Computer Specialist
82	533	Computer Specialist
83	534	Computer Specialist
84	535	Deputy Director, Financial Analysis Division
85	536	Systems Accountant
86	537	Program Analyst
87	538	Operations Research Analyst
88	539	Program Analyst
89	540	Program Analyst
90	541	Act. Hd. Secretariat Accounts Branch
91	542	Supervisory Accounting Assistant
92	543	Director, Administrative Services Division
93	544	Program Analyst
94	545	Director Program/Budget Systems Operations
95	546	Data Control Branch Head
96	547	Program Analyst
97	548	Program Analyst

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